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USSR Report

TRANSPORTATION

No. 41

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AIR

REGULAR FLIGHTS FROM MOSCOW TO ANTARCTICA DISCUSSED

Leningrad LENINGRADSKAYA PRAVDA in Russian 10 Feb 81 p 2

[Interview with Deputy Director of the Arctic and Antarctic Scientific Research Institute (for Antarctica) Ye. S. Korotkevich, doctor of geographical sciences, in Leningrad, by V. Volkov]

[Text] In February of last year the Aeroflot aircraft IL-18D (long-range) number 74267, leaving Moscow, covering some 16,000 km, blazed the shortest route to the sixth continent. The landing was made not far from the "capital" of the Soviet Antarctic researchers -- the meteorological center at Molodezhnaya..There, near Vechernyaya Mountain, an unprecedented snow-ice airport has been constructed. It was constructed for the first time in world practice by specialists of the institute "Lenaeroproyekt" in cooperation with the workers of the Arctic and Antarctic Scientific Research Institute.

This was a "technical" flight, that is, a trial. And now preparations are being completed for a scheduled flight to distant Enderby Land. The red-winged airliner so familiar to us will proceed to the execution of passenger flights on this transcontinental route. It will deliver 40 winterers to Antarctica and on the way back will take aboard those whose time has come after long work on the severe continent.

Our correspondent V. Volkov converses with the Deputy Director of the Arctic and Antarctic Scientific Research Institute for Antarctica, Doctor of Geographical Sciences Ye. S. Korotkevich, concerning the impending air expedition.

[Question] Yevgeniy Sergeyevich, the route has been tested, and accordingly remains unchanged?

[Answer] There have been changes. Whereas last year the aircraft headed from Moscow immediately to the south, now it will first proceed northward -- to us at Leningrad. This is easy to understand. Our institute is the center of Soviet polar research. The Antarctic Expedition, forming the seasonal and wintering parties of polar specialists and coordinating their work on the sixth continent, is situated in Leningrad. As a rule ships with cargo and people depart from Leningrad for the most southerly continent. Now aircraft have laid out a route to Antarctica from the city on the Neva. After taking on passengers at Pulkovo, the IL aircraft will fly to Odessa. Then the usual route will be taken: Cairo-Aden-Maputo-Molodezhnaya. The distance, including from Moscow to Leningrad, is 17,190 km. The airmen plan to overcome this distance in 30 hours flight time.

And still another detail: the last time the scientific research ship "Professor Vize" was situated on the most difficult segment -- the route across the ocean with a length of 5,000 km. It served as a radio beacon and relay station for the aircraft on the route to Enderby Land. This time it was decided to get by without the assistance of the ship. The radio center Molodezhnaya was completely able to handle this.

[Question] So this means that there is full basis for saying that regular air communication is beginning with Soviet Antarctic stations?

[Answer] To be sure, aircraft will not be going there every day and not even every month, but for the time being only twice a year. But we do not now need more service. The next flight is planned for November, the last month of the Antarctic spring, when the ice has not yet retreated and ships cannot approach the continent. But the weather already enables geologists and biologists, for example, to proceed to their research. And an aircraft will deliver these specialists much sooner than the first ship will arrive.

In the future we plan to use the IL-18 for transport work on the continent itself. In particular, for the transport of freight from Molodezhnaya to other stations and especially to the intracontinental station Vostok. Fuel and foodstuffs for the time being are delivered there by sledge-tractor trains from Mirnyy Observatory: 1,410 km of severe snow desert. The next airdrome will therefore evidently be created at Vostok. It is an attractive idea to use this aircraft for investigations of the continent. During the flight to the South Pole last year it already served as a scientific laboratory for geophysicists and meteorologists. Therefore, in the future we plan to carry out more extensive scientific research from aboard the plane in the regions of difficult access. That is, the IL-18 will soon be working fully the entire summer season. But with approach of the Antarctic autumn it will return home, to the motherland.

[Question] Who is entrusted with piloting the airliner?

[Answer] From Moscow to Leningrad the plane will be piloted by Anatoliy Nikolayevich Denisov, who on the trial flight had been ship commander. He will also fly it to Odessa. Denisov is not flying to Antarctica this time. Anatoliy Nikolayevich has undergone retraining and will soon take under his command a TU-154, which will service the northern lines in our country. As far as Aden, as before, the IL will be flown by a crew headed by Yevgeniy Petrovich Bunchin. There the command will be taken over by Viktor Vasil'yevich Bushuyev, who on the trial flight had been the co-pilot. The remaining members of the Antarctic crew are the same.

The commander of the Vnukovo flight subdivision Mikhail Mikhaylovich Miroshnichenko has been designated head of the aviators. The flight director is Boris Andreyevich Krutskikh, Deputy Director of the Arctic and Antarctic Scientific Research Institute.

[Question] What is the condition of the snow-ice airdrome?

[Answer] The landing strip, although not inferior to a concrete strip, as indicated by the trial flight, nevertheless is dependent on the state of the weather. Above-zero temperatures are no good. But at Molodezhnaya the weather at the present time, to speak outright, is like that in Leningrad. Somewhat below zero, during the 24-hour period averaging -3°. That is what is required. The airdrome service has tested the strip with a special platform with a 70-ton weight mounted on the chassis of an IL-18 aircraft. The depth of penetration of the wheels over the entire area of the landing strip was in the limits of one centimeter. And the admissible depth is six centimeters. An emergency airdrome has been prepared at Novolazarevskaya. Molodezhnaya regularly gives the aviators a timely weather forecast and reports on what wind direction and velocity can be expected at a height of 8-10 km along the route Maputo-Molodezhnaya.

In short, at the polar capital they are awaiting the first passenger liner and are ready for its reception.

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...Yesterday the IL-18D made a landing at Pulkovo. Refueling, the last investigation was made of the navigation instruments and engines before the highly important flight. Today at midday the red-winged airliner will take off for the ice continent.

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AIR

FUEL CONSERVATION MEASURES FOR TU-154

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 11, 1980 pp 18-19

[Article by TU-154 commander V. Shishkin: "The Crew's Personal Accounting"]

[Text] Transport aircraft crews are making a large contribution to aviation fuel economy. Not one trip is made today without a careful economic analysis, including a study of fuel expenditure. The operational qualities of a flight crew are reflected, as if in a mirror, primarily in these indicators: the extent of organization, the ability to use flight operations administration rules for specific flight conditions, the art of piloting, aircraft flying, the ability to use the advanced know-how of the leading experts.

This is why in our pre-flight preparation we in the crew always assess where and how possible it is to cut down on aviation fuel expenditure. There is much potential for this. Take, for example, warming engines, taxiing to the take-off area, the precise actions of the crew during pre-take-off, taxiing in place on one running engine. In each case it is at times only a matter of seconds, but this results in a savings of hundreds of kilograms of fuel.

The norms for kerosene expenditure on TU-154 aircraft are strictly limited and extremely rigid. However, the whole complex of measures, the maximum utilization of progressive measures, and the skillful use of the recommendations of the "Flight Operations Manual" yield positive results. The "Guide to TU-154, Tu-154A, and TU-154B Crews on Fuel Economy during Flights" and the special "Tables for Determining the Take-off and Landing Characteristics of TU-154B Aircraft" give us specific help. I only wish that these documents would cover the special flight cruise features, holding, and setting altitude and descent.

Of course, there are no recommendations for every flight condition--each new flight differs from the previous one. The main initiative always belongs to the crews. In my work I use the useful advice given by the co-pilot V. Shevchenko, the navigator V. Baykov, and the flight engineer B. Borisov.

Thus, in addition to the recommendations clearly stated in the "Guide," we use our own fuel economy measures--flight centering, providing trimming for a selected cruise condition, setting altitude for the most advantageous conditions, descent on idle without choppers, flights over the shortest distances, banked turns of up to five degrees, the strictest control over fuel expenditure at each stage of the flight, etc.

I already said that we prepare for the utilization of these fuel economy means while still on the ground. However, it so happens that a quickness of wit and sharpness in this plan must also be displayed in the air. For example, each time we make a determination about the condition of the air in which we will fly--primarily the air temperature, speed and wind direction, the altitude of the tropopause, and the jet streams. Based on these data we come to an agreement with the ground on the possibility of occupying the most favorable flight altitude.

The procedures and methods for conserving aviation fuel, on which I have dwelt, should be used under definite conditions, i.e., the matter should be approached creatively. However, do not be covered here only by the bare letter of the law, as this sometimes must be observed. It is no secret that each crew, for reasons over which it has no control, many times finds itself in a holding pattern over an airport. As a result several additional circles over the ground nullify the fuel savings gained through such work during the flight. Therefore, the task must be resolved as a whole through the participation of all flight maintenance services without exception. How much can one condone examples of a wasteful approach toward fuel expenditure, airport delays, and unjustified time spent in holding patterns.

Finally, the existing sanctions for the over-expenditure of fuel only indirectly affect the negligent workers. This over-expenditure must be immediately sensed as wrong and the worker must be strictly required to eliminate its causes. In my view, many cases of wastefulness would be eliminated if the person in each case would bear specific financial responsibility. The struggle for fuel economy must be conducted with the same persistence and urgency as is found in providing the safety and regularity of flights.

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ACCOUNT OF MOTOR VEHICLE INDUSTRY OUTPUT

Moscow AVTOMOBIL'NAYA PROMYSHLENNOST' in Russian No 2, Feb 81 pp 1-3

[Article by G. M. Alekseyev: "Motor Vehicle Manufacture for the 26th CPSU Congress"]

[Excerpts] Motor vehicle output in the country has reached the planned level and as reported recently by the USSR TsSU [Central Statistical Administration] was 2,199,000 units in 1980; this included 787,000 trucks and 1,327,000 cars. Production of buses for public transportation increased 1.4-fold and tripled for large-tonnage trucks. Truck production increased 16 percent and output of vehicles with diesel motors doubled. Trailer output increased 23 percent.

Production of 75-ton dump trucks and 120-ton dump tractor-trailers for the mining and fuel industry was assimilated. Output of "Niva" cars with enhanced roadability for rural areas increased to 50,000. Bearing output increased in general with primary growth in the production of special instrument, precision and other bearings in the especially critical groups. Production of spare parts for motor vehicles and tractors increased almost 1.5-fold.

The first phase of the Kama complex for production of large-tonnage trucks was put into operation and is active. Construction of the second phase of the KamAZ [Kama Motor Vehicle Plant] is being completed. Output capacity of 150,000 highly efficient motor vehicles and the required number of motors for them will be provided by the 26th CPSU Congress. This is a ponderable present by the motor vehicle manufacturers to the party congress.

Progress was made in the development of the network of firms for centralized distribution of spare parts and repair of motor vehicles and engines produced by the Kama Motor Vehicle Plant and the large-tonnage vehicles of the BelAZ [Belorussian Motor Vehicle Plant]. The automobile maintenance network has been improved and continues intensive expansion.

The planned output of consumer goods has been provided. In gross indicators, state plan quotas were somewhat exceeded. Labor productivity grew at high rates. In the process, almost half of its growth was attributable to accelerated introduction of progressive technology and equipment and the means for automation and mechanization, reequipment of enterprises, improvement in management of the industry and other organizational and technical measures. It is very significant that the achieved labor productivity growth rates, while substantially surpassing wage increases, furnished 86 percent of the growth in product output.

A well-known effort to raise the technical level of motor vehicles and engines for them was carried out in the industry. Implementing instructions from the CPSU Central Committee on questions of accelerating scientific and technical progress in machine building, the industry extended engine service life, increased fuel economy and reduced metal-intensiveness. Production of more than 70 models of new and modernized motor vehicle designs was assimilated. As a result, their fuel economy was raised 5 to 7 percent. Vehicle service life before major overhaul was extended 1.2 to 1.5-fold. Service and maintenance labor-intensiveness was reduced 15 to 20 percent. Metal input per ton of load capacity was reduced 5 to 7 percent. The level of exhaust toxicity and noise meets international standards.

The increase in the average load capacity of vehicles and trailers produced from 4.9 to 6.2 tons and the improvement in driver working conditions made it possible to raise motor transportation productivity 20 percent which is equivalent to releasing about 600,000 men in the national economy.

The expansion of production of tractors and trailers and diesel-powered vehicles and more economical carburetor engines saved 30 million tons of fuel and motor oil in the five-year period.

A basic feature in reequipment in the years 1976-1980 was the shift from automation and mechanization of individual operations to the introduction of a complex of automatic machine tools and lines embracing the entire industrial cycle. The number of fully automated and mechanized shops and plants doubled in the 10th Five-Year plan compared to the 9th. The number of automatic lines in the metalworking industry grew almost 1.5 fold, and the share of automated equipment grew faster than the total machine tool pool. This made it possible to manufacture more than 60 percent of the output for 1980 with this equipment.

Robots were standardized for basic industrial conversions and hundreds of them are now used in labor-intensive and monotonous operations. As a whole, the quotas for the five-year plan on raising the level of mechanization of operations were met, which made it possible to conventionally release about 80,000 workers.

Efforts were continued to further expand industrial production of specialized equipment for sector needs: its volume increased eightfold for the five years.

During the five-year period, the laboratory and test facilities of the industry's NII and KB [scientific research institutes and design bureaus] were expanded. During this period, new areas were commissioned in the NIITavtoprom [Scientific Research Institute of Technology of the Automobile Industry], the NAMI [Central Scientific Research Institute of Automobiles and Automobile Engines] and many other scientific research institutes in the industry, thanks to which the volume of production by the test and experiment facilities of the institutes and design bureaus increased 1.6-fold.

The economic effect from putting scientific developments into production doubled in 1980 compared to 1975. In addition, work aimed at raising reliability, durability, economy and other technical and economic parameters of motor vehicles yields a substantial effect when they are operated in the national economy. There is no doubt that this has also been facilitated by the specialization of the scientific research institutes and design bureaus that has allowed concentration of efforts of scientists and designers in the main areas of technical progress in motor vehicle manufacture.

A large role in raising the effectiveness of industrial science is played by the creative collaboration between scientists, production workers and operators in solving topical scientific and technical problems. An example of this is the joint effort of the Moscow Automobile Plant imeni I. A. Likachev, other automobile plants, the Central Scientific Research Institute of Automobiles and Automobile Engines and the Glavmosavtotrans [Main Administration of Automobile Transportation of the Moscow City Soviet of Workers' Deputies] on raising the quality, reliability and durability of trucks, approved by comrade L. I. Brezhnev. The national economic effect obtained in the 10th Five-Year Plan through the improvement of vehicles made by the ZIL, GAZ, MAZ and KrAZ [Moscow Auto Plant imeni I. A. Likachev, Gor'kiy Auto Plant, Minsk Auto Plant and Kremenchug Auto Plant] jointly with the transportation enterprises was about 800 million rubles.

To accelerate introduction of the achievements of basic science into the practice of the automobile industry, a complex of joint efforts is being made by the institutes of the academies of sciences of the USSR and the union republics with the enterprises and organizations of the Minavtoprom [Ministry of the Automobile Industry] under a special plan that includes dozens of scientific directions.

A great contribution to savings in the five-year period was made by the sector's rationalizers and inventors. Total savings from the introduced suggestions was almost 400 million rubles, which is 1.5-fold higher than the level achieved during the years 1971-1975.

In the 10th Five-Year Plan, the effort to increase output of products with the State Mark of Quality was actively carried out. During this period, about 1,500 items were certified for the Mark of Quality. In all, over 2,100 such products are being output, and they comprise 37.5 percent of total commodity production. At 26 enterprises in the industry, more than half of the products are manufactured according to the highest category of quality, and the production associations "ZIL" [Moscow Auto Plant imeni I. A. Likachev], "AvtoVAZ" [Volga Auto Plant], "BelavtoMAZ" [Minsk Auto Plant] and "UralAZ" [Ural Auto Plant] produce all basic models of automobiles with the State Mark of Quality. Systematic work on developing and introducing a complex product quality control system is carried out at all enterprises, and an industry-wide system for this is being established.

Use in the enterprises of the industry of the experience of the Volga Automobile Plant imeni the 50th Anniversary of the USSR on the development of a complex system for organization of labor and management is a major direction in the work on raising production efficiency. As is known, use of it at the Volga Plant has made it possible in the shortest possible time to assimilate and surpass projected capacity, reduce labor-intensiveness and production cost and increase labor productivity, achieve high quality and produce competitive products, and resolve the questions of growth of occupational skills of workers and advancement of them in work. The award in 1980 to a group of the industry's specialists of the USSR State Prize in the field of science and technology for introduction of this system at the Volga Auto Plant is recognition of the importance of the work accomplished. Consequently, this system must be more extensively introduced at the other enterprises.

Work on converting enterprises to the new conditions of management provided for by the decree of the CPSU Central Committee and the government on further improvement of the economic mechanism has entered a decisive phase.

Capital investment to develop the industry has been at a high level. As a result, during the five-year plan, in addition to the first phase of the Kama Auto Plant, a number of enterprises related to it have been put into operation, such as the Yaroslavskiy Diesel Apparatus Plant, the Neftekamskiy Dump Truck Plant and the Krasnoyarskiy Trailer Plant. Construction is being completed on the first phase of a major plant for production of brake apparatus in Roslavl'. Many plants that produce motor vehicle assemblies, electrical equipment and monitoring instruments have been expanded further. Production capacity for cars and trucks, motor vehicle and tractor trailers, buses and antifriction bearings has been increased.

As a result of steps taken to concentrate capital investment in priority projects, fixed industrial production capital almost doubled during the five-year plan. The volume of unfinished construction declined from 130 to 101 percent against the annual volume of capital investment. The balance of uninstalled equipment declined. The industry reached the normative level for this indicator in 1980.

In addition to industrial construction, sociocultural facilities have been built at considerable rates. Living space increased 7.6 million m^2 and 46,000 spaces for children were added to pre-school institutions. The number of spaces was increased in schools, vocational and technical institutions and hospitals.

During the past five-year plan, certain progress was noted in economizing on rolled ferrous metal products and reducing the metal-intensiveness of motor vehicle equipment produced. Use of economical types of rolled products increased 1.3-fold. Part production volume using low-waste technology has grown. Casting production using progressive technology has increased considerably. This method is now used to make 44 percent of the total volume of castings. Parts manufacture by the method of extrusion on hot stamping presses has increased 1.5-fold, and that by the method of cold closed impression die forming instead of lathe machining has tripled. Development was achieved and new processes introduced to strengthen parts and tools using the plasma jet and flame spraying methods. A number of plants began industrial utilization of laser equipment. The use of the progressive processes of heating up blanks for stamping, powder metallurgy and form rolling of pinions and splined shafts has grown substantially.

In the 10th Five-Year Plan, motor vehicle and motor bike export volume went up noticeably, including to the countries with freely convertible currency. The volume of mutual deliveries of products between the industry and CEMA country enterprises increased 1.4-fold. A distinguishing feature of the scientific and technical cooperation with CEMA countries was further expansion of the practice of joint performance of major work.

The achievements of domestic automotive manufacture in the 10th Five-Year Plan were a result of the selfless labor of the collectives at the industrial enterprises and scientific organizations and associations on implementing the decisions of the 25th CPSU Congress and the subsequent decrees by our party's Central Committee, the realization of conclusions and instructions stemming from statements and speeches by comrade L. I. Brezhnev, General Secretary of the CPSU Central Committee, on party economic policy at the contemporary stage, and the great and purposeful mass-political and organizational effort of the party organizations. This was also facilitated by the training, selection, placing and education of workers, engineers, technicians and managers.

The physical plant to train skilled workers has been expanded. Now operating in the industry are 76 vocational and technical schools. Training of new workers and raising their skills are also done at enterprise production training facilities. In special courses organized at leading plants, about 2,000 highly skilled repairmen for complicated automatic equipment have been trained.

During the five-year period, 50,000 people were trained in 34 specialties in the tekhnikums. The number of workers with a higher and secondary education increased 19 percent. Currently, every fourth worker in the industry is a graduate specialist. About 800 candidates and doctors of science work in the enterprises and scientific organizations. The industry's system of training and retraining managers, engineers and technicians under special programs in which a third of all specialists have been trained has been further developed.

The Communist Party is orienting labor collectives to the decisive campaign for further raising of the efficiency of the economy which, as is known, is inextricably entwined with accelerating scientific and technical progress.

Main attention will be focused on all out economizing on metal, fuel, heat and electricity, raising product quality and improving the economic mechanism.

Plans call for assimilating output of about 100 new models of motor vehicles, doubling the production of diesel-powered motor vehicles and truck tractors, increasing by 1.4-fold the production of vehicle trailers and semitrailers, and organizing the production of industrial transportation vehicles for agriculture and dump trucks wit' increased load capacity for the fuel and mining industry.

This will make it possible to raise the productivity of motor vehicle transportation in the national economy by 30 percent, release about 500,000 drivers, save at least 40 million tons of motor fuel and oil, and reduce the labor-intensiveness of maintenance by 20 percent.

The scale of reequipping the industry based on improving technology and raising the level of production mechanization and automation will be expanded. It is planned to increase the volume of use of low-waste industrial processes, such as closed impression die forming, precision casting, manufacture of parts by stamping and welding, and processes that substantially raise the quality and service life of products (power grinding, plasma jet and flame spraying of wear-resistant alloy coatings).

The proportion of specialized automatic and semiautomatic equipment, including flexible, readjustable automatic lines, will increase. The modernization program to reduce the share of general-purpose equipment will be tripled in comparsion to the 10th Five-Year Plan. The number of automated systems that control industrial processes and of complex intraplant transport systems will increase. Great attention will be paid to introducing energy-saving technologies.

Technical progress will be accelerated based on further substantial growth in output of equipment and expanding the application of new progressive materials.

To successfully accomplish these measures, it is necessary to raise the quality and soundness of planning, balance plan goals with physical and financial resources and capital investment, and prepare and switch to evaluation of production by new wholesale prices that provide the conditions for normal cost-accounting activity of the enterprises and production associations and the sector as a whole. This will be facilitated by the completion in 1982 of the sector's shift to the new conditions of economic operation.

It is necessary to ensure maximal concentration of capital investment on the major projects. The minimally needed priority projects to establish self-contained capacities and carry out the main tasks of the industry must be determined by the forces of the plan institutes and enterprises.

Decisive among them will be the organization of production of motor vehicles with diesel engines at the ZIL [Moscow Auto Plant imeni I. A. Likhachev], diesel engines at the GAZ [Gor'kiy Auto Plant], and specialized agricultural vehicles at the Ural and Kutaisi Auto Plants; development of production of quarry dump trucks and tractor-trailers at the "BelavtoMAZ" association [Minsk Auto Plant], assimilation of new capacities and expansion of output of vehicles with large load capacity at the KamAZ [Kama Auto Plant]; expansion of diesel-powered buses at the Likino Bus Plant and the L'vov Bus Plant imeni the 50th Anniversary of the USSR; assimilation of new models of cars at the Volga Auto Plant imeni the 50th Anniversary of the USSR, the Gor'kiy Auto Plant, the Zaporozh'ye "Kommunar" Auto Plant and the Moscow Auto Plant imeni the Leninist Komsomol; increase in output of motor vehicle and tractor trailers and semitrailers at the plants of the "Soyuzavtopritsep" VPO [All-Union Production Association]; development of a design of an electric vehicle with a small load capacity; implementation of further development of production of high-precision bearings with increased load capacity; expansion of production of container carriers with a 20 and 30-ton capacity, refrigerator trucks, tankers for petroleum products, and vehicles for hauling cattle, poultry and liquid complex fertilizers with a load capacity of 9 to 12 tons, as well as spare parts for motor vehicles.

Accomplishing these tasks must be aided by an effort to reduce the timeframes for development and assimilation of new technology which are often unjustifiably extended, and by concentration of efforts of the scientific research institutes and design bureaus of the enterprises on the major subjects of scientific and design developments and further strengthening of the experimental facilities at the scientific research institutes, design bureaus and enterprises.

In addition to the scientific research institute and design bureau specialization by types of product and technology that occurred in the 10th Five-Year Plan, that same specialization of engineering services should be deepened by type of motor vehicle and especially by its units and assemblies.

We should also investigate the possibility of establishing in the leading production associations special plants (shops for small series) equipped with digital program controlled machines, processing centers and other types of rapidly readjustable progressive industrial equipment that will make it possible to produce within compressed timeframes industrial prototype lots of new items in the quantities needed for their comprehensive processing, to concentrate efforts of scientists, designers and engineering teams on solving key problems, to substantially accelerate product updating, raise their quality and reduce capital outlays for these goals.

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MOTOR VEHICLE

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ACCOMPLISHMENTS OF ZIL PRODUCTION ASSOCIATION IN 10TH FIVE-YEAR PLAN SUMMARIZED

Moscow AVTOMOBIL'NAYA PROMYSHLENNOST' in Russian No 2, Feb 81 pp 4-5

[Article by V. A. Krasil'nikov, "ZIL" Production Association: "Confident Step of the Workers at the Moscow Auto Plant imeni I. A. Likhachev"]

[Excerpt] Development, preparation and assimilation of new types of products have been and are underway in the design bureaus, laboratories and shops; output of ZIL-133 vehicles has been increased and their load capacity raised from 8 to 10 tons; production of the ZIL-133GYa equipped with a diesel engine has begun; and production of the new home refrigerator, the KSh-260 (model 63), with improved consumer and operating features has begun.

Special attention has been paid to raising product quality. Practically all the types of main products--motor vehicles and their modifications, engines and home refrigerators--have earned the State Mark of Quality. A total of 885 shop items have received intraplant certification.

As a whole throughout the association, about 3,000 measures are developed and introduced annually within the framework of the complex system for product quality control. Just through the complex of measures for the ZIL-130, the load capacity was increased one ton, which on a country-wide scale has made it possible to save about 100 million rubles annually.

All this work is tied closely to the system for raising workers' occupational skills. Almost 9,000 skilled workers have been trained in schools for quality, and 14,627 people in production engineering courses. These figures are also significant: during the 10th Five-Year Plan, the service life of the V-shaped engines increased from 200,000 to 250,000 km, and the mileage from 250,000 to 300,000 km.

A major direction in the activity of the workers at the ZIL Plant is reequipment of the plant. It is being done on the basis of the solid scientific and technical facilities of the association and through the enlistment of cooperation from almost 80 scientific organizations, institutes and scientific production collectives in the country, as well as thanks to full mechanization and automation and the latest technical processes. Currently operating within the association are 25 fully mechanized shops, several dozen fully mechanized sections, and hundreds of automatic and mechanized flow lines. The length of the conveyors and transporters grew to 166,600 m, and the level of mechanization of hoisting-transport and warehousing operations was 92.7 percent.

As a result of the organizational and technical measures implemented in the past five-year plan, the following have been put into operation: a fully mechanized shop for painting cold stamped parts (press complex); more than 200 mechanized flow and automatic lines, including for anticorrosion protection of parts, processing of drums and hubs of rear axles, pistons and bushings, assembly and welding of fuel tanks, and hot stamping of parts; introduction of a new industrial process for heat treatment of axle housings by high frequency currents was completed; a section for electroslag remelting of steel for stamps and tools was established; the technology for production of punches and knurling rollers, and the technology of chemical-heat treatment (cementation) of parts in a vacuum and others were developed and introduced.

Introduced during the 10th Five-Year Plan were more than 130 units of the means of automation of metal-cutting and other equipment, 47 automatic and semiautomatic machines for welding parts in basic and ancilliary production, 8 state standards of the YeSTPP [Unified System of Technological Production Preparation] and 18 state standards of the YeSTD [Unified System of Technological Documentation]. Drafted were 1 standard to elaborate YeSTD standards, 8 enterprise standards to elaborate YeSTPP standards and 78 enterprise standards for the KP UKP [complex program for product quality control].

Tests on processing data in the automated system for management of basic production under proving ground conditions were completed. Tasks in the mechanized assembly and fitting complexes, the main forging shop and engineering and technical personnel management were put into operation using terminals in the teleprocessing mode.

Increasing production capacity and equipping and reequipping the plants required construction of new facilities. Put into operation were a tall automated warehouse, a sand-preparing complex and a north annex to the main linear shop for gray cast iron, a warehouse for cast iron, a warehouse for parts, assemblies and units in the vehicle assembly complex, an open platform for finished vehicles, a shop for cylinder block sleeves and repair casting at the Mtsensk Aluminum Casting Plant, a wing of auxiliary shops at the Ryazan' Motor Vehicle Assemblies Plant and others.

One of the main tasks for the association in the 10th Five-Year Plan was to further improve the skill structure of the collective and raise the general and specialized educational level of the workers. The training facilities at the auto plant imeni I. A. Likhachev made it possible to do this: operating at the auto plant are a plant higher technical educational institution, a tekhnikum, a city vocational and technical school and secondary schools. The plant workers acquire knowledge and practical skills in in the production training shop, the three-year school for foremen, the motor vehicle school and in the continuously provided courses for training new workers and raising skills. Therefore, during the 10th Five-Year Plan, thousands of workers raised their skill level and the majority of supervisors and specialists were involved in various forms of training.

Much work was done on the occupational orientation of students in the general educational schools under the association's patronage and on training them for work: annually 150 new Young Pioneer Leaders from among the foremost production workers worked in the 13 schools supported; about 3,000 pupils visited the shops to get acquainted with the plant's chief occupations; more than 400 pupils in grades 9 and 10 went through work training in the plant's subdivisions.

The CPSU Central Committee decree "On Improving Workers' Economic Education" became the guide for action in the association. An harmonic system of organization of personnel economic education was established at the ZIL association and is functioning successfully. In the 10th Five-Year Plan, training was conducted by programs such as "Fundamentals of Economic Knowledge," "Economic Principles of Labor and Production," "Socialism and Labor," "Principles of Economics and Management of Production," "Engineering Labor in Socialist Society," "Work of Supervisors," and "Expertise in Complex Product Quality Control." The initiative of the propagandists and students of the system of economic education on work on personal accounts and on a practical contribution to raising production efficiency and product quality was developed extensively. During the two training years, students in the system of economic education achieved savings of 2,800,000 rubles.

In solving the problems of social development of the collective, much importance is attached to improving living and working conditions and protecting the health of workers. Therefore, during the 10th Five-Year Plan at the plants of the association, a whole complex of measures was implemented to reduce the level of noise and vibration in the work areas, reduce the dust and gas content of the ambient air in the production areas, improve the illumination of work areas, reduce industrial processes with harmful working conditions and mechanize heavy manual labor. To make their own work area, brigade, section and shop exemplary--these tasks were fully within the power of many plant collectives.

All the accomplishments listed above made it possible for the workers in the "ZIL" Production Association in the 10th Five-Year Plan to substantially exceed plan goals in production volume and labor productivity growth (for example, labor productivity increased 31.6 percent against the planned 29.2 percent).

Successful accomplishment of the plans of the 10th Five-Year Plan and socialist pledges made by the plant's collective is the result not only of the organizational and technical measures, but also the continuously progressing competition among plant workers to raise production efficiency and work quality and the wide propagation of new patriotic undertakings and initiatives. A genuinely communist attitude to work is exemplified by the communists, leaders and innovators in production moving in the vanguard of the competition.

There are many thousands of communist labor shock workers in the ZIL production association. In addition, more than 1,000 brigades, almost 200 sections, about 500 shifts and several dozen shops hold the title of collective of communist labor.

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MOTOR VEHICLE

UDC 629.113.037:061.62

WORK OF KREMENCHUG MOTOR VEHICLE PLANT DETAILED

Moscow AVTOMOBIL'NAYA PROMYSHLENNOST' in Russian No 2, Feb 81 pp 5-6

[Article by S. S. Malov, Kremenchug Motor Vehicle Plant imeni the 50th Anniversary of Soviet Ukraine: "Effect of Cooperation"]

[Excerpt] At the Kremenchug Motor Vehicle Plant imeni the 50th Anniversary of Soviet Ukraine, the basic direction of engineering policy is the systematic improvement of product quality. The major means facilitating the success of this policy is the complex system for quality control (KS UKP). Thanks to it, it is becoming possible to obtain continuous, comprehensive and complete information on the operation of the vehicles produced, their reliability, durability and operating and repair technological effectiveness, and on meeting the demands of consumers and transportation work being performed. This channel of so-called feedback is of great value to the plant and is one of the decisive elements in product quality control.

Studying the operating qualities of vehicles has been a feature of the plant since production started in 1960. In the early years, plant representatives made regular trips to places where Kremenchug vehicles were operated. But later when the NAMI [Central Scientific Research Institute of Automobiles and Automobile Engines] set up experimental production facilities in the country's various climatic zones and they became a reliable source of information for this institute, the plant, following their model, began setting up its own network of base vehicle facilities that are still operating even now. In researching vehicle reliability, checking the effectiveness of modernization, and gathering practical data on operating technological effectiveness and maintainability, the plant works jointly with its 22 bases where more than 2,000 Kremenchug vehicles of various models are under observation. In this effort, the plant works closely with the NAMI, the Kiev Institute of Motor Vehicle Roads, the NIIAT [State Scientific Research Institute of Automotive Transportation], the TsNIIME [Central Scientific Research Institute of Mechanization and Power Engineering in the Lumber Industry], the Irkutsk Polytechnical and Tomsk Construction Engineering Institutes, and the institute of the AvtotransNIIproyekt [expansion unknown] of the UkSSR Ministry of Automotive Transportation.

The plant's scientific and technical cooperation with motor transport enterprises and institutes is based on agreements providing for long-term efforts and mutual obligations aimed at organizing utilization of Kremenchug vehicles with maximal effectiveness for the country's national economy. Experience shows that this form of cooperation is tremendously effective since it permits unification and maximal utilization of the efforts of specialists in production, operation and science.

Among the main efforts conducted jointly by the plant and the base vehicle facilities and institutes, the following should be mentioned:
1) modernization of series vehicles regarding the undercarriage, transmission, motor systems, brakes and steering that made it possible to raise the engineering standard of the vehicles and almost double their expected life during the last 10 years;
2) the complex of research, development and introduction of measures to reduce the labor-intensiveness of maintaining series vehicles almost 30 percent;
3) optimization of the norms for consumption of spare parts and their list that made it possible, on the one hand, to better satisfy consumer demand (consequently also a high factor of technical readiness of the vehicles), and on the other hand, to make efficient use of physical and manpower resources in production;
4) deeper study of problems associated with vehicle repair that made it possible to raise their maintainability, to develop progressive industrial processes and methods of rebuilding parts after prolonged operation and to provide a high secondary service life of vehicles after major overhaul;
5) refinement of techniques of research efforts on problems of reliability, operating technological effectiveness and maintainability;
6) creation of a large data base that enables computer modeling of the reliability and durability of vehicle units and systems; and
7) training of engineers capable of handling the complicated tasks of studying the reliability of products output.

To fully appreciate the value of the scientific and technical cooperation among the plant, motor vehicle facilities and institutes, let us look at several examples.

1. During the period 1970-1979, the mean time between failures [MTBF]--the basic indicator describing vehicle quality was improved significantly: now the MTBF during the warranty period of operation is almost fourfold greater than in 1970.

2. Zero-defect manufacture of products and turning them over to the OTK [technical control department] on the first submittal became the norm in all shops in basic production: now, e.g., 98.5 percent of the products are turned over on the first submittal.

3. The number of consumer claims on the quality of Kremenchug vehicles was cut to a third of those made 10 years ago.

Vehicle service life has been extended significantly (see table).

	Service Life, %		
Model	1970	1975	1980
KrAZ-256B Dump Truck	100	150	170
KrAZ-257 Truck	100	140	160
KrAZ-258 Truck Tractor	100	180	200

As a result of all the plant collective's activity aimed at raising product quality, 73 percent of the vehicles are produced in the highest quality category and 27 percent in the first category.

In summing up the results of the plant's cooperation with motor transport organizations and institutes in the country, the large national economic effect should be noted. Thus, just the extension of service life of series vehicles yielded 229 million rubles to the country's national economy, and reducing the labor-intensiveness of maintaining the vehicles through extending maintenance intervals 25 percent and reducing the prescribed maintenance services saved over 20 million rubles. This is equivalent to an increase in freight turnover by 14,291,000,000 t/km, conventionally releasing 10,000 trucks with a large load capacity through increasing their productivity, reducing the number of major overhauls of KrAZ trucks by 15,000 and so on. In the final analysis, it would be no mistake to assert that the effect of the cooperation between science and industry as applied to our plant is equivalent to doubling the output of KrAZ trucks without substantial capital outlays.

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MEANS OF IMPROVING MOTOR VEHICLE REPAIR DESCRIBED

Moscow AVTOMOBIL'NAYA PROMYSHLENNOST' in Russian No 2, Feb 81 pp 6-7

[Article by V. A. Doletskiy, candidate of engineering science, "Avtodizel'" Production Association: "Improving Motor Vehicle Repair Work Based on Industrialization and Standardization of Parts Rebuilding Methods"]

[Text] Improving the organization of major overhauls of YaMZ [Yaroslavl' Engine Plant] engines, searching for methods to raise the quality of engine overhauls, and reducing outlays associated with rebuilding engines are the paramount tasks of the sector.

In the works of many authors, the necessity of raising quality and reducing costs for repair of motor vehicles and their assemblies through improving the organizational structure of repair work under a unified engineering policy has been indicated. It has been noted that the problem of raising quality of repair of motor vehicles and their assemblies at the current state of the art of repair work lies in meeting the requirements of the specifications and normative provisions as well as of the state standards on performance of repair work.

Analysis of domestic and foreign experience in motor vehicle repair work has shown that to establish a unified engineering policy in the organization of repair work, special attention must be paid to developing repair firm design-technological documentation. There is no such documentation yet at the repair plants.

The advisability of development of repair design-technological documentation by the manufacturing plants is dictated even more by the fact that the automotive industry owing to the community of tasks is primarily interested in the effective operation of the motor vehicle repair industry. In addition, manufacturing plants are the legislators of all requirements that form the needed level of product quality, and in developing requirements for the repair of their own equipment will be best able to provide optimal values of indicators of maintainability when they develop future models and modernize existing vehicles and their assemblies.

However, the problem of establishing a common engineering policy in organizing repair work based on firm design-technological documentation could not be solved without the complex scientific system that covers the comprehensive questions of establishing design, industrial production, operation and repair of engines. This system of the scientific organization of work on extending engine service life (NORM) was created by the collective of the Yaroslavl' "Avtodizel'" Production Association.

The NORM system has an active effect on the sphere of operation of engines and repair, facilitating more complete utilization of the service life of engines prior to major overhaul and extending the between-repair service life through raising the quality of repair with the maximally possible amount of rebuilding work.

In drafting the unified repair design-technological documentation, the use of which should provide an 80-percent overhaul (secondary) service life of engines, specialists of the "Avtodizel'" association studied the reliability of engines during operation of them under various conditions to obtain a complete and reliable picture of the nature of part failures and the amount of wear of rubbing surfaces. The results of these studies served as the basis for drafting the design-technological documentation for industrial repair of YaMZ engines. The documentation provides the possibility of rebuilding 60 types of parts of the engine and consists of repair illustrations, trouble shooting charts and a list of industrial processes for washing and cleaning engines and their components, disassembly, assembly and test operations, and rebuilding of maintainable parts. For approval of this documentation, interdepartmental bench tests on the reliability of six overhauled engines were made in 1978-1979 in accordance with GOST 14846-69. All engines passed the tests without adverse comments.

In 1980, operating tests were completed on a trial run (25 units) of overhauled engines at automotive combine No 1 of the Glavmosavtotrans [Main Administration of Automotive Transportation of the Moscow City Soviet of Workers' Deputies]. Specialists from the NAMI [Central Scientific Research Institute of Motor Vehicles and Automotive Engines] and the YaMZ [Yaroslavl' Engine Plant] monitored the tests. Test results showed that γ-percent service life of overhauled engines is more than 80 percent of the primary service life under prescribed operating conditions.

The docuemntation developed by the "Avtodizel'" association was sent to 62 of the largest enterprises that overhaul YaMZ engines. As a result of the partial introduction of this documentation, several leading repair enterprises managed to significantly raise the quality of engine overhauls and reduce consumption of spare parts. Since a number of repair enterprises cannot switch to organization of industrial repair without substantial modernization because of their specialization, low capacity, poor equipment and low culture of production, concrete proposals aimed at optimization of diesel repair organization were drafted. The proposals were founded on the organization of firm repair of engines on an industrial basis.

This solution to the problem of repair work opens broad possibilities for utilization of modern highly productive equipment and advanced industrial processes, and makes it possible to transfer the technological and organizational experience of the main manufacturer to the repair enterprises, since first, the technical documentation for industrial repair of engines has to be drafted by the main plants; second, engines will be overhauled at major specialized regional plants that are part of the association manufacturing these engines, and third, supply of repair plants with repair stocks and realization of overhauled engines, assemblies and parts have to be done through a network of firm exchange points.

In working out the new industrial processes for engine repair, the following provisions were adopted: thorough performance of the operations of washing and cleaning of the parts of engines at all stages of producing the overhauled assembly or unit; pooled compulsory rebuilding of parts on flow lines; complete processing of the service surfaces of parts; organization of disassembly and assembly of engine assemblies and units on conveyors using mechanized tools and specialized equipment.

Applying this engine repair technology permits substantial change to the customary system of checking and screening (trouble shooting) of parts.

At the new repair plants, trouble shooting of parts must be done by only two or three basic parameters that determine the possibility of rebuilding a given part on a flow line.

As stated above, the proposals are based on the principle of establishing major specialized plants in the system of product manufacturing production associations in which the industrial processes of engine disassembly and assembly, part processing during rebuilding, and engine tests must be similar to basic production with its flow lines, complex means of mechanization and specialized equipment.

Yaroslavl' Engine Plant specialists estimate that more than 840,000 YaMZ engines are used in the country's national economy; about 117,000 to 130,000 of them need overhauling in a given year. Considering the distribution of the pool of motor vehicle transport equipment with YaMZ engines in the territory of our country and the optimal outlays for delivery of repair stocks to plants, it would be advisable to build 6 to 7 repair enterprises to handle 20,000 to 25,000 overhauls each a year.

To supply these major plants with repair stocks, 38 to 40 exchange points will have to be organized in the country. These exchange points must be cost accounting enterprises that can handle the following tasks: acquisition and supply of regional enterprises with repair stocks; sale of overhauled items; performance of warranty, minor and medium repair of engines based on diagnosing their technical condition; teaching operating organization specialists the rules for routine service and repair of engines; and supplying operating organizations with spare parts.

Rough estimates show that the overall economic effect in the national economy from introducing this system of centralized repair on an industrial basis, proposed by the "Avtodizel'" Production Association, obtained through raising the readiness factor of the motor vehicle and tractor fleet, extending the post-overhaul life of engines and saving on consumption of spare parts and other outlays, would be about 200 million rubles per year.

Improving the existing automotive repair industry must be done in stages.

In the first stage, it is necessary to introduce the unified technical repair documentation in the existing repair enterprises, establish the flow lines and specialized sections for rebuilding engine parts and assemblies, and effect centralization of rebuilding of individual parts and extensive cooperation among repair enterprises.

However, realization of the first stage is possible only if state standards are developed for rebuilding basic and principal engine parts that will allow establishing a base for implementing a common technical policy for diesel repair.

The necessity of standardizing optimal methods and industrial processes for rebuilding diesel parts is clearly illustrated by the examples of development of industrial processes for rebuilding crankshafts, connecting rods, wrist pins and other engine parts.

Association specialists studied and analyzed all known methods of rebuilding crankshafts. This research permitted establishing the optimal industrial process for rebuilding crankshafts that ensures high quality of repair. In a special section set up at a main plant, more than 3,500 crankshafts were rebuilt and installed in engines used in heavy-freight vehicles and tractors. Some engines have already accrued a running time equal to 60-80 percent of the primary service life. The Yaroslavl' Engine Plant transferred the elaborated technology to a number of repair enterprises and gave them practical assistance in organizing specialized sections. Such sections are now functioning at some repair plants.

Similar progress was made on developing the industrial technology for repair of connecting rods, piston rings, cylinder heads and other engine parts.

To more widely disseminate the experience gained and implement a unified technical policy in the country on rebuilding diesel crankshafts, specialists at the "Avtodiezl'" Production Association have worked up a draft USSR state standard, "Overhauled Steel Crankshafts for Diesel Engines."

The basis for realization of the second stage in improving repair work is construction within the "Avtodizel'" Association of an experimental repair plant. The plant's first phase will be able to overhaul 5,000 engines per year.

The plan for the plant under construction calls for a number of new solutions on organizing centralized engine overhaul based on the concrete proposals drafted by the "Avtodizel'" Association.

The folowing tasks will be handled in this plant: development of standard industrial processes for repair of engines, gear boxes and clutches; experimental research on methods for rebuilding of parts; development of norms for consumption of spare parts for repair needs; introduction of standard industrial processes in repair plants; and personnel training.

Thus, the experimental repair plant of the "Avtodizel'" Association may become the main technical center of plants for repair of YaMZ engines.

We believe that the joint efforts of our production association, the scientific research institutes and repair enterprises will make it possible to significantly increase the effectiveness of overhauling motor vehicle and tractor equipment and put repair on an industrial basis.

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MOTOR VEHICLE

RSFSR REGULATIONS FOR INTERCITY FREIGHT SHIPMENTS DISCUSSED

Moscow KHOZYAYSTVO I PRAVO in Russian No 1, Jan 81 pp 73-75

[Article by D. Polovinchik, chief of the Legal Department with Arbitration, RSFSR Ministry of Motor Transport: "Intercity Motor Freight Shipments"]

[Text] A feature of motor transport as a sector of the national economy is that its trucks are not under the jurisdiction of any one ministry or department, but belong to thousands of enterprises, organizations and institutions of all ministries and departments. Therefore, a leading role belongs to the legislation that defines the interrelation between general-purpose motor transport and departmental motor transport, especially with intercity freight shipments. These include shipments made over 50 km from the city (other settlement).

Although intercity motor freight shipments have evolved substantially in recent years, the national economic demand for them has not been fully met.

The rapid delivery of freight "from door to door," the capability of delivering it right to the place of consumption in optimal lots by schedules compiled with regard to the basic production of the freight shipper and the freight receiver, the use of drivers under the system of combination of occupations to perform transport-dispatch services and the high degree of safety of shipments associated with this are the indisputable advantages of motor freight shipments.

Along with this, a curbing factor in the development of intercity shipments by motor transport is the relatively high level of tariffs that at present are substantially higher than those for railroads. Decreasing the cost of motor shipments and thereby creating the possibility of reducing tariffs is the major problem for motor transport workers.

In many instances, enterprises and organizations sending loaded trucks long distances do not have the opportunity to load them for the return trip. The driver's labor is used, fuel burned and wear and tear put on the trucks in vain.

USSR TsSU [Central Statistical Administration] estimates show that just a one percent reduction in empty runs in 1979 would have made it possible to ship about 270 million more tons of freight with the fleet of trucks then on hand.

By decree No 598 of 5 August 1968, the CPSU Central Committee and the USSR Council of Ministers bound the managers of enterprises, economic organizations, ministries and departments to give trucks being sent without a load (beyond the limits of cities and settlements) to general-purpose motor transport enterprises for loading with freight going in the same direction.[1] The procedure for implementing this task was established by the Instructions on the Procedure for Loading Empty Trucks of Enterprises, Organizations and Institutions with Freight Going in the Same Direction by General-Purpose Motor Transport Enterprises of the Union Republics approved by the RSFSR Ministry of Motor Transport and Highways on 20 February 1969 in coordination with the USSR Gosplan and the USSR Gosarbitrazh [State Arbitration Commission]. Just in the RSFSR, up to 1.5 million empty trucks are loaded annually with freight going in the same direction by the especially established traffic control and dispatch stations and other enterprises and organizations of general-purpose transport. However, this is extremely inadequate.

Practice shows that to raise the effectiveness of loading empty trucks, general-purpose transport has to be granted additional authority to organize intercity freight shipments and coordinate the operation of motor transport resources participating in these shipments irrespective of their departmental affiliation. Therefore, the RSFSR Council of Ministers by decree No 140 of 20 March 1980 in coordination with the USSR Gosplan, the USSR Gossnab, the USSR Minister of Finance and the USSR State Arbitration Commission approved the Regulation on Organization of Intercity Motor Freight Shipments in the RSFSR.[2]

Similar regulations were approved by the Councils of Ministers of the other union republics.

In accordance with the Regulation, enterprises, associations, organizations and institutions of the ministries and departments, and executive committees of Councils of People's Deputies and cooperative and public organizations (holders of departmental motor transport) may make intercity freight shipments only with permits issued by general-purpose motor transport enterprises. Thus, while under the decree of 5 August 1968, holders of departmental motor transport were bound to inform general-purpose motor transport enterprises of the number and directions of traffic of only empty vehicles, under the Regulation of 20 March 1980 they must now also coordinate (at least 24 hours in advance) the dispatch of loaded trucks on a trip too. Motor transport enterprises for general use must consider the appropriate requests within 16 hours of receipt and inform the holder of departmental motor transport whether or not the vehicles may be sent on an intercity trip. A permit may be denied if the general-purpose motor transport enterprise assumes the obligation of shipping the corresponding freight by its own trucks or those of other departmental affiliated vehicles travelling empty in the same direction. This makes it possible to provide the most efficient and cheapest method of freight delivery.

General-purpose motor transport has a specialized network of main transport-dispatch enterprises engaged in organizing intercity shipments for the enterprises, institutions and organizations of all ministries and departments. In organizing the operation of trucks by timetables and schedules, the main transport-dispatch enterprises ensure a high degree of utilization of motor transport resources and shipping costs lower than that of departmental motor transport. Switching freight from departmental to general-purpose motor transport makes it possible to not only reduce the transportation expenses of the national economy, but also to free departmental vehicles to perform industrial and other economic shipments for which they, in fact, are intended.

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[1] SP SSSR [Collection of USSR Government Regulations and Decrees], 1968, No 15, p 99.

[2] SP RSFSR [Collection of RSFSR Government Regulations and Decrees], 1980, No 8, article 67. The regulation does not affect the motor transport enterprises, associations, organizations and institutions of the Ministry of Defense, the USSR Ministry of Internal Affairs and the USSR Committee for State Security.

There is no necessity of proving also the advisability of transferring freight to departmental trucks returning empty to their permanent location. Indeed, why allow an enterprise located, for example, in Moscow to send a truck with freight to Leningrad if a Leningrad-based truck is returning empty.

The Regulation of 20 March 1980, in giving general-purpose transport the right to deny a holder of departmental transportation a permit to send a freight truck on an intercity run, also established its financial responsibility for noncompletion of this shipment.

A general-purpose transport enterprise or organization that has not issued a shipment permit to a holder of departmental transport must provide trucks for loading the corresponding freight within 24 hours when the shipping distance is from 50 to 300 km, or 48 hours when the shipping distance is over 300 km, of the schedule specified in the request by departmental motor transport. If this is not done, the general-purpose motor transport enterprise or organization pays the holder of departmental motor transport a fine of 20 percent of the value of the unshipped freight in accordance with article 127 of the RSFSR UAT [Motor Vehicle Transport Administration]. In addition, the holder of departmental motor transport in this case must be issued a permit to send the trucks to deliver this freight.

To improve utilization of departmental motor transport, general-purpose transport enterprises and organizations when issuing a shipment permit must also take all possible steps to issue a task to the holder of departmental transport for the loading of his empty trucks if the holder does not have freight for both ways.

This task is binding on the holder of departmental transport; in case of nonperformance, the holder must pay a fine to the general-purpose transport enterprise or organization under article 127 of the RSFSR UAT.

The procedure for issuing permits for intercity freight shipments is prescribed by the Interim Regulation approved by the RSFSR Ministry of Motor Transport on 21 July 1980.

Permits may be issued on a one-time basis, or for a specified period of 5 days, a week or 10 days, but no longer than a month. Exceptions are made for holders of departmental motor transport in areas where there are no general-purpose motor transport enterprises or organizations. They are issued permits by transport administrations (main administrations) of general-purpose motor transport for a longer period but not longer than a year.

The Instructions on the Procedure for Computations for Motor Freight Shipments approved by the USSR Ministry of Finance, the USSR Gosbank and the USSR Central Statistical Administration on 28 December 1977 should also be kept in mind. Under these instructions, intercity freight shipments may be made by trucks (irrespective of their departmental affiliation) only with special trip tickets issued by general-purpose motor transport enterprises or organizations. The trip tickets are issued for interoblast or interrepublic runs.

The Regulation of 20 March 1980 especially emphasizes the obligation of general-purpose motor transport enterprises and organzations to improve the organization of intercity freight shipments based on a study of freight flows. While issuing permits, trip tickets and tasks, general-purpose motor transport enterprises and organizations must identify steady freight flows to further expand the network of regular routes over which intercity shipments are made by general-purpose motor transport, precluding thereby the necessity of enterprises, institutions and organizations sending their own trucks with or without freight on long-distance trips.

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RAILROAD

PAVLOVSKIY PRESENTS ELEVENTH FIVE-YEAR PLAN FOR RAILROADS

Moscow GUDOK in Russian 6 Mar 81 pp 1,2

[Article by I. G. Pavlovskiy, USSR minister of railroads: "Railroad Transportation in the New Five-Year Plan"]

[Excerpt] The document "Basic Directions of Economic and Social Development of the USSR," ratified by the congress, stated: "Take steps to improve the work of all forms of transportation, chiefly railroads, and insure their development in complete conformity with public and economic needs."

During the 10th Five-Year Plan the freight turnover of our country's transportation system increased by 1 trillion ton-kilometers, reaching 6.2 trillion ton-kilometers in 1980. During this five-year period passenger traffic grew by 143 billion passenger-kilometers to a current level of 890 billion passenger-kilometers. Pipeline, maritime, motor vehicle, and air transportation developed more rapidly. Even today, however, the railroads account for more than two-thirds of internal freight turnover and about 40 percent of passenger traffic.

In the 10th Five-Year Plan the railroads carried a total of 18.5 billion tons of national economic freight, 11.4 percent more than in the Ninth Five-Year Plan. Total freight turnover increased by 14.6 percent. Nonetheless, as noted in the document "Basic Directions," we were not able to eliminate shortcomings in the work of railroad transportation. Many enterprises experienced difficulties because of failure to deliver raw and processed materials, fuel, and assembly components on time and delays in hauling off finished products.

In the new 11th Five-Year Plan, as emphasized in the document "Basic Directions of Economic and Social Development of the USSR for 1981-1985 and the Period Until 1990": "The basic task of transportation is to satisfy economic and public transportation needs fully and on time and improve the efficiency and quality of work by the transportation system." To meet this challenge railroad workers must handle freight turnover that is increasing by 14-15 percent. This means that freight turnover in 1985 will exceed 3.9 trillion ton-kilometers.

Fuel shipping will increase most rapidly. An increase of 62-77 million tons is contemplated for deliveries of hard coal. Most of the increase in shipping will come from the Kuznets, Ekibastuz, and Karaganda basins. From these three basins alone, served by the Kemerovo, Tselina, and Alma-Ata roads, the average daily shipment of coal should rise by 33-34 trains by the end of the 11th Five-Year Plan. Coal shipping from the Donets basin will increase by 7-12 million tons. Shipment of petroleum will increase roughly 35-39 million tons in the five years. Shipments of iron, manganese, and nonferrous ores, the principal raw materials of the metallurgical industry, will increase 44-49 million tons. The increase in shipment of timber will be 38-40 million tons. Grain shipment will reach 140-145 million tons in 1985.

In connection with accelerated development of Siberia and the Far East, the bulk of the increase in shipping will occur on the Sverdlovsk, West Siberian, Krasnoyarsk, East Siberian, Transbaikal, Far East, and Tselina roads. The increase in freight turnover there will be at least 19-20 percent.

Passenger traffic will increase by 39 billion passenger-kilometers to a figure of 370 billion in 1985. The bulk of the increase will occur on the roads of the European part of the country, in the sectors that link the Central Zone, Urals, and Northwest with the southern part of the country. The longest transportation connections will continue to be serviced primarily by Aeroflot.

Construction Is Envisioned

The new five-year plan envisions the construction of 3,580 kilometers of new railroad lines. The opening of traffic on the full length of the Baikal-Amur Mainline will have a decisive impact on developing the riches of the regions adjacent to it. The work of this line will promote the development of the new industrial-economic complexes: Upper Lena, North Baikal, Udokan, South Yakut, Tynda, and Zeya-Svobodnyy. Construction of the Pogromnoye — Pugachevsk line will be completed this year. It will be an important link in the new east-west mainline which will make it possible to ship freight from Siberia and the Kuznets basin to the west around the main Siberian and Kropachevo-Kuybyshevsk corridor. The Rybonye — Uzunovo, Argyz — Krugloye Pole, Kiev — Tripol'ye, and other lines will be built to relieve pressure on operating sectors and improve transportation links in various regions of the country. One of the fundamental tasks in solving the transportation problem is building heavy-duty double-track mainlines. During these five years 5,070 kilometers of additional main tracks will be built in a number of key sectors of the system.

As Comrade L. I. Brezhnev observed at the party congress, the development of stations is an economical and quick way to increase the carrying and processing capacities of the railroads. Plans in the new five-year plan call for laying at least 2,400 kilometers of station track, mechanizing 40 classification yards, and building about 40 pneumatic post offices. Other major projects will be carried out also to increase the carrying and processing capacities of the stations. Realization of the master plan for development of the Moscow transportation center, the largest in the country, during the present decade will have a significant impact.

Main Directions of Technical Progress

As in previous years, the main line of technical progress will be switching railroads to electric traction. The USSR has led the world since 1958 in both rate of electrification and total length of electrified lines. We have more than 43,700 kilometers of electrified trunk lines today. This is roughtly 30 percent of the total length of the rail system. More than 54 percent of all shipping is performed by electric traction. The following fact illustrates the intensity of their use. Our electrified railroads, which are only about three percent of the total length of railroads in the world, handle more than one-quarter of world shipping volume.

More than 6,000 kilometers of track are to be electrified in 1981-1985. The share of electric traction in total shipping work will rise to 59 percent by the end of the 11th Five-Year Plan. Priority for electrification will be given to the busy freight lines in the eastern part of the country (Bira — Karymskaya), Kazakhstan (Tselinograd — Kokchetav — Kurgan), and Western Siberia (Tyumen' — Nazyvayevskaya). The Krasnoufimsk — Cherusti line will be switched to the most progressive form of traction. Electrification of the Moscow to Brest sector is to be completed.

Electrification of railroads has an enormous national economic impact. It has been calculated that the introduction of electric traction in the 11th Five-Year Plan, together with the increase in carrying and traffic capacity of the lines, will make it possible to save more than 7 million tons of diesel fuel.

The latest advances of science and technology are being used in electrification. Some 90 percent of the system will be electrified with industrial-frequency AC current. Plans call for expanding the use of the new, more economical system to supply 2 × 25 kilovolt AC power. Contemporary automation and remote control equipment will be introduced on a broad scale in power supply devices.

The introduction of new, more powerful means of traction has always created a good foundation for increasing the weight and traveling speed of trains and handling a growing volume of shipping. Unfortunately, during the last decade only 27 percent of the growth in shipping work was met by increasing the weight of the trains, whereas in the preceding decade it was 36 percent. As a result, many sectors had to resort to overintensive use of traffic capacities, which made operations work much more complex. If we had an adequate number of diesel engines with 4,000-6,000 horsepower and electric locomotives capable of developing 8,000-10,000 kilowatts, it would be possible to increase the weight of trains on more than 40,000 kilometers of track from 3,000-4,000 to 5,000-6,000 tons.

Thus, we must hold firm to a policy of increasing the power output of means of traction and increase the weight of trains by 92 tons on the average in the five-year plan. The prerequisites for this exist. Models of powerful electric and diesel locomotives have been built in recent years. Scientists and designers are now working on even more powerful machines. The challenge is to see that this new traction equipment is brought to reliable working condition and launched in large-scale series production as quickly as possible. In this we are counting on the active support of workers in the locomotive building industry.

Reliable means of traction, wise use of them, proper maintenance, and high-quality repair will guarantee stable work by the locomotives on the line.

The new five-year plan envisions the development and construction of 110 depots and shops. Enterprises are being supplied with up-to-date industrial equipment and are introducing flow lines. We intend to continue the policy of mechanizing and automating repair work with great persistence. This is a proven way to raise the quality of repair, which means the reliability of the equipment. It is a major reserve for raising labor productivity even further.

The collectives of our leading locomotive depots at Sol'vychegodsk, Atkarsk, Zhmerinka, Rybnoye, and Krasnyy Liman are setting an example of efficient organization of high-quality locomotive repair. In Sol'vychegodsk the largest depot repair job for diesel locomotives is done in 36 hours compared to the systemwide norm of seven days. The practices of leading collectives should unquestionably be widely disseminated.

An increase in deliveries, more reliable locomotives, modernization of the locomotives now in use, and an increase in the production of spare parts are the steps that should foster an upgrading of the fleet of electric and diesel locomotives and stabilize their work.

Thus, the locomotive system faces quite difficult problems whose solutions require the fixed attention of scientists, designers, and locomotive builders in addition to practical railroad workers.

Updating and improving the structure of the car fleet are an important line of action in technical re-equipping of transportation. The railroads receives more than 350,000 freight cars, 14,000 passenger cars, and more than 242,000 containers in the 10th Five-Year Plan. In the last 10 years the average load capacity of a car has increased seven percent. Nonetheless, the problem of introducing large-capacity 16-wheel cars is being solved very slowly. Yet this is one of the main ways to raise carrying capacity. Forming through trains from 16-wheel cars will make it possible to increase their weight by roughly 37 percent with the same length of station track.

The proportion of specialized cars in the fleet of rolling stock is growing. In 1980 they made up about 30 percent of all cars delivered. The production of gondola cars to ship coal and ore, open hoppers for grain, cement, and mineral fertilizer, and flatcars for shipping large containers and cars is increasing. Specialization makes it possible to use load capacity better, reduce expenditures in preparation for shipping, reduce freight losses en route, and raise the level of mechanization of loading operations.

The intensive use (a freight car in the USSR is used several times more intensively than one in the United States) and difficult working conditions demand that our railroad cars have greater strength, durability, and operating reliability.

Completing the switch to roller bearings in freight cars is a major problem. Solving it will make it possible to save about 3 billion kilowatt-hours of electricity, 1.5 million tons of diesel fuel, more than 20,000 tons of nonferrous metal, and more than 400,000 tons of axle grease each year. It will free thousands of persons employed in heavy manual labor. The total savings will reach almost 1.5 billion rubles a year.

Only half of the freight cars work on roller bearings today. Some 14 percent of the new cars are still produced with sliding bearings. The document "Basic Directions of Economic and Social Development of the USSR" envisions stepping up work to switch the entire fleet to roller bearings. We must make every effort to complete this job in the 11th Five-Year Plan.

The car system has a good production base. Under current conditions, however, it needs accelerated development and improvements in the organization and technology of work. This should be the focus of attention for employees of the car system in the new five-year plan.

It is important to intensify work to preserve the car fleet and minimize damage to cars during loading and classification work. For this purpose the task has been given of stepping up construction and introduction of raised track, platforms, car-tippers, and other unloading devices that prevent car damage. By 1983 the transition to unloading gondolas by gravity should be completed. By this time also plans envision completing the modernization of all rotary car-tippers.

There must be a sharp improvement in the condition of the fleet of rolling stock based on fundamental improvements in operations, current maintenance, and the quality of repair.

Railroad workers know that the track is the main thing. The track system accounts for about half of railroad fixed capital. This is our most capital-intensive sector. A great deal was done in the 10th Five-Year Plan to bolster it. The strength of the track was increased significantly. The average weight of a rail increased 1.9 kilograms and is now 57.2 kilograms per running meter. The length of line where heavy-duty type R-75 and R-65 rails have been laid was increased by 24,000 kilometers. The quantity of thermally strengthened rails being laid is increasing greatly. At the end of 1980 this kind of rail had been laid on 57,000 kilometers of track. The length of jointless track on reinforced concrete ties has increased greatly.

The production-technical base of the road operations system has continued to develop. The volume of track repair has grown. In 1980 alone a total of roughly 47,000 kilometers of main routes was repaired.

The 11th Five-Year Plan calls for delivery of 11 million tons of new rails, 25 percent more than was received in the 10th Five-Year Plan. More than 80 percent of them will be thermally hardened. By the end of the five-year plan there will be 80,000 kilometers of jointless track with reinforced concrete ties.

The volume of capital track repair will increase by at least 28 percent. More than half of the work will be done in sectors with high traffic intensity on the roads of the Urals, Siberia, and the Far East.

A great deal of capital will be invested in improvement of engineering structures. More than twice as much metal as in past years is being allocated just for replacing bridge span structures.

Given the enormous traffic intensity, a sharp increase in the rate of track repair work assumes paramount importance. The principal way to meet this challenge is by full mechanization. About 80 types of special track machines are in use for different jobs today. The system has 189 production bases equipped with hoisting cranes and flow lines to dismantle and assemble the track.

Current track maintenance requires fixed attention. It uses 70 percent of labor expenditures in this sector of our system. The basic solution to the problem lies in switching to the machine-based industrial method of performing these labor-intensive jobs. Schedules of train traffic should contain gaps of up to two hours to perform ongoing track maintenance work. The jobs themselves must be organized with broad use of existing automated track straightening, packing, and leveling machines as well as prospective machines to secure and lubricate the clamping and packing bolts of jointless track and heavy-duty ballast-distribution, finishing, and other machines. Test sectors have been set up on the Moscow Road to work out the organization of these jobs.

During the current five-year plan transportation is to receive more than 120 track-laying cranes, some 300 straightening-packing-leveling machines, an equal number of snow removal machines, and a great deal of other equipment. Efficient use of this machinery will make it possible by 1985 to raise the level of mechanization in capital track repair to 87 percent, while the level for medium repair will rise to 76 percent, for track-lifting work to 68 percent, and for ongoing track maintenance to 40 percent.

Comprehensive mechanization and automation of loading-unloading work is a key national economic problem. During the 10th Five-Year Plan the level of mechanization in this work was raised to 91 percent. A major program is outlined for the new five-year plan. About 10,000 new machines are to be put into use and hundreds of loading-unloading facilities are to be built.

Other sectors of our multifaceted system will also develop and improve at a fast pace. The total capital investment in railroad transportation during the five years will grow by 30 percent, including 44 percent for construction and installation work. Deliveries of new equipment will rise sharply.

Organization of the Shipping Process

The vast shipping system today is inconceivable without a well-organized system of management. Comrade N. A. Tikhonov, chairman of the USSR Council of Ministers, pointed out in his report at the 26th Congress of the CPSU that the Ministry of Railroads must take firm steps to raise the level of organization of road operations, work hard to introduce full mechanization in loading-unloading and repair operations, increase the traveling speed of trains, and insure uninterrupted delivery of freight to customers.

The leaders of transportation and all railroad workers have been given a challenge: insure optimal use of means of transporation. Plans envision accelerating car turnaround by roughly 18 hours in the 11th Five-Year Plan. This will make it possible to ship more than 550 million tons of additional freight in a year with the same fleet of cars. To achieve this goal the sector speed must be raised to 2.4 kilometers an hour. The time spent processing trains at classification and sector stations must be reduced and car downtime for loading operations decreased by introducing progressive technological processes, new equipment, and the know-how of leading collectives. Up to 50 percent of all freight should be delivered by through trains.

Container and stack shipping is an important way to raise the efficiency of transportation work. According to calculations by specialists, the following savings can be achieved by container shipping compared to transportation in standard closed cars (calculated per million tons of item and packaged freight): timber — 200,000 cubic meters; metal — 25,000 tons; packaged fabrics — 20 million square meters. In monetary terms the total savings will be more than 20 million rubles.

The volume of container shipping rose 8.6 percent during the 10th Five-Year Plan to 40 million tons in 1980. There is no question that the opportunities for development of container shipping are far from exhausted. A very profitable measure is being held up by flagrantly inadequate growth in the production of containers and processing equipment. The system for control of container shipping also needs major improvement.

There are also many serious shortcomings in the organization of freight shipping in stacks. In 1980 159 million tons of packaged and item freight was shipped in stacks. However, stack shipping is just 18.6 percent of the total volume of shipping of such freight. Calculations show that if the volume of shipping of packaged and item freight in stacks were raised to 85-90 percent by 1985, which is a realistic task, it would be possible to save 1.6-1.7 billion rubles, free 110,000-130,000 persons now employed in loading-unloading and warehouse work, and accelerate car turnaround by more than seven hours.

The material-technical base of the automated control system for railroad transportation was significantly consolidated in the past five-year plan. The volume of work done with the help of computers increased 2.8 times. Plans for 1981-1985 envision a significant increase in capital investment for the development of this automated control system in order to create the technical base for automated control systems for the shipping process on most roads. The return from computer technology must be greatly increased.

For the Convenience of Passengers

During the 10th Five-Year Plan the number of passengers using railroad transportation increased by almost 100 million or 2.5 percent, reaching 3.6 billion in 1980. During the summer 19,000 passenger trains were working on the roads, including 17,000 suburban trains. About 10,500 regular, crossing, and passing stations carry on passenger operations. Each day more than 17,000 ticket offices sell some 10 million tickets. About 30 million rubles of capital investment is used each year for development of the passenger system. During the 10th Five-Year Plan roughly 300 new terminals, 2,000 passenger platforms, and almost 600 passenger shelters were built. The productivity of the automated system for reservations and ticket sales in the Moscow rail center, the nation's largest, rose by 30 percent. In 1980 some 39 million tickets were sold through this system. Today, however, this is no longer enough. Therefore, a more powerful system is being developed which will be launched in 1982. During the new five-year plan similar systems are to be set up in Leningrad, Kiev, Rostov-na-Donu, and Sverdlovsk.

More than 200 million rubles will be spent in 1981-1985 to build up the material-technical base of the passenger system. Plans call for modernization of the Kazan', Pavelets, and Kursk terminals in Moscow and construction of terminals in Minsk, Tbilisi, Grodno, Kazan', Kostroma, and several other cities. Many passenger shelters will also be built.

Work will continue to update the passenger locomotive fleet. Two-section ChS7 electric locomotives with units for electrical heating of the cars have been ordered. Production of ER2R electric trains is planned. New electric trains with pulsed control, high acceleration from a stop, increased capacity, improved passenger compartments, and wider entries to the cars will be produced.

More than 15,000 new cars will be added to the passenger car fleet. New types of cars are to be built. Some of the new cars will have convertible furniture and dividers. Attention is being focused on improving the smoothness of the ride and the heating considering travel in the Far North and on the Baikal-Amur-Mainline. Industry has been given the job of developing and organizing the production of special noncombustible materials.

In the first two years of the new five-year plan the schedule of passenger train traffic introduced in May 1979 will be in effect. The new schedule for 1982-1985 envisions an increase in traffic on certain sectors, the introduction of new trains, an increase in traveling speed, and more convenient scheduling for passengers. We have a very great deal of work to be done to improve service to passengers at the terminals and on the trains. Model service to passengers is a matter of honor for every railroad worker. This must be the focus of organizational and indoctrination work.

The Soviet metros (subways) have received wide recognition in our country and abroad. They have proved themselves to be a reliable, highly convenient, comfortable, and fast form of urban transportation. Many cities are building new and expanding existing metro lines. In the 11th Five-Year Plan 1.45 billion rubles is being appropriated for this purpose. Plans envision the introduction of more than 112 kilometers of new lines, 29.4 kilometers in Moscow. Four new subway systems will go to work in Minsk, Yerevan, Gor'kiy, and Novosibirsk. Metro construction is also planned in Kuybyshev, Sverdlovsk, and Dnepropetrovsk. Technical documents are being prepared for the Riga metro and work is to begin on development of plans for subways in Omsk, Alma-Ata, Chelyabinsk, Rostov-na-Donu, and Perm'.

The development, technical re-equipping, and improvement in operations of railroad transportation will unquestionably provide a significant improvement in basic economic indicators. In the 11th Five-Year Plan the labor productivity of railroad transportation employees should rise 10-12 percent. This means that 85 percent of the growth in shipping should be covered by the rise productivity.

The decisions of the 26th party congress devoted special attention to strengthening economy measures. Railroad workers can and should do a great deal in this respect also. Planners have calculated that saving just one percent of operating capital in 1985 would save 136 million rubles. This is enough to build some 750,000 square meters of housing.

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RAILROAD

TRANSPORT WORK OF EAST SIBERIAN RAILROAD ASSESSED

Moscow EKONOMICHESKAYA GAZETA in Russian No 6, Feb 81 p 14

[Article by Ye. Sofinskiy, chief of the economic planning division of the Administration of the East Siberian Railroad: "Reflections of an Economist--Criteria for Evaluating the Transport Work"]

[Text] The East Siberian Railroad has an important place in the system of steel main lines of Siberia and the Far East. The collective of the road with its many thousands of members is applying great efforts to the task of insuring on-schedule transport of freight and passengers.

At the same time, it cannot be overlooked that the road is now working under great strain and is not fully satisfying the national economy's current transport requirements. Overcoming the deficiencies and improving the work on the railroads involves the solution of a whole series of difficult problems, not the least of which pertains to improvement of the planning and financial work and enhancement of the systems of economic incentive.

There has of late been an intensification of discussion of many of the problems connected with improvement of the economic mechanism in railroad transport. The economists have come up with contrasting opinions concerning the indicator of freight turnover expressed in ton-kilometers.

A number of specialists advocate dispensing with the planning of this indicator and consider it only an estimate. Others, on the other hand, approve of it. But the thing is it is not a matter of whether this indicator is good or bad and how it should be regarded. The most important thing is that the procedure which has evolved for the planning of freight turnover (and not just freight turnover) has substantial deficiencies: the engineering and economic calculations do not play the dominant role in the planning; the primary basis for the planning is the report data for the past periods and the increase added to them (often without any estimate of the requirements or without calculation of the potentialities).

In recent years the volumes of shipments have fluctuated so much for the various days, months and quarters that it is impossible to determine whether the trend is for a decline or increase of freight turnover in some particular sector. All this indicates that freight turnover as an indicator for the freight sections is more appropriate for the group of estimate indicators.

The other basic volumetric indicator for the work of the railroads is passenger turnover. In recent years a number of railroads, including the East Siberian, have exhibited an unmistakable trend toward a reduction in the volume of passenger transportation. The reasons are many. Not the least of them is the role played by deficiencies in the organization of the transportation.

But there are also objective reasons which in some sectors hamper the movement of passenger trains. There is therefore taking place an exodus of passengers to other types of transportation. For example, disruption of the schedule for suburban train traffic in the Irkutsk-Angarsk sector forced the passengers to turn to the motor transport services. In the first half of 1980 there were a thousand more bus trips between these cities than there were in 1979.

As a result, in 1980 passenger turnover on the railroad was 13 percent less than it was in 1975. Despite this, the planning organs are with enviable persistence setting up for the railroad a 1981 passenger transportation plan with a 3.5 percent increase.

It should be noted that if the volume of freight shipments can still be estimated with some degree of accuracy on the basis of the production and supply plans, then the volumes of passenger transportation can be predicted with a very high degree of approximation and the plans for it are mapped out virtually without any estimates. It is apparently necessary to relate the "passenger-kilometer" indicator to the estimate indicators and to improve the quality of the planning in accordance with the actual passenger flow.

It should be noted that the practical value of any planning yardstick lies in its mobilizing and organizing capacity. Serving as such a predominant indicator on the railroads is the number of tons of freight loaded, or to put it simply, the loading of the cars. Bonuses are paid and economic incentive funds are credited for fulfillment of the loading plans and they are strictly monitored by the higher and directive organs.

At the same time, the planning of freight dispatch is in need of further improvement. Throughout the 10th Five-Year Plan period the railroad repeatedly failed to fulfill the assignment for shipment of lumber. Lumber is a very necessary product for the country. And this problem must be resolved in a comprehensive and efficient way by making sure the lumber shipment plans approximate the true potentialities of the railroad carriers and the freight shippers. Failure of the shipment plans to conform to the transport potentialities results, in particular, in failure of the collective of the railroad as a whole and its sections to be a winner in the socialist competition of recent years and last year this began to apply to the basic line enterprises (locomotive and car depots, shunting yards). The reason clearly lies not only in the shortcomings and neglect of the collectives but also in the imperfections in the planning.

Great untapped reserves also lie in the possibility of improving the use of the rolling stock and increasing its productivity. The railroad's average density of freight traffic is 1.7 times that of the network and for the main run it is nearly double. At the same time, the rolling stock is in operation less than one-third of the working time. The rest of the time it is idle for various reasons.

For the railroads and sections freight car turnover has now been established as the general qualitative indicator for the utilization of fixed capital. But the amount of freight car turnover is by no means always determined by the labor efforts of the collective of the railroad and particularly of the sections. Here is one example. In the first quarter of 1980 the car turnover time on the road was 4.38 days and on the Bratsk section 3.82 days. And in the third quarter the figures were 5.18 and 5.31 days respectively. Does this mean that during this period there was a change in the workers' collective and its attitude toward the work? Of course not. The answer is that in the third quarter the freight recipients and shippers addressed themselves in a more responsible way to the processing of the railroad cars. And yet for the railroad nonfulfillment of the assignment for car turnover entails all kinds of financial penalties. The problem is of course not a simple one and it requires thorough study.

The party and government decisions concerning improvement of the economic mechanism stipulate that the five-year and yearly plans of the production associations (enterprises) and organizations be compiled on the basis of the economic and engineering data with no attempt to establish the planning assignments solely from the existing dynamics of the relevant indicators. As it is interpreted, does this important statute apply to an indicator like the wage fund for the railroads? (As do the other railroads), the East Siberian and its line enterprises need exact figures on the wage fund and other outlays required for the forthcoming planned period. The basic calculations must be treated as statutes in force and as the existing normative base required for the most expedient refinement and improvement. This will help in the recruitment and assignment of the personnel, especially on the railroads of the Ural region and Siberia.

The establishment in 1980 of a worker strength requirement (limit) for the enterprises went into effect as a very important element of the planning procedure. This work must be accomplished on the basis of a thorough analysis of the operating conditions of specific enterprises and organizations and from these conditions there must be excluded any influencing factor in the planning process which is not entirely in keeping with the decisions.

Ane one other point. As we know, the capital investments for the construction of production and nonproduction installations and structures are centralized: the Ministry of Railways determines the volume of the capital investments for the railroads and it compiles an itemized installation construction list. For the financing of the capital investments, in accordance with the current statutes, use is made of the railroad funds for the development of production and for social and cultural measures and housing construction. The allotment of bank credits is decided only through the ministry.

What ultimately happens is that the executives of the railroads--the largest production associations of the Union type--forfeit the powers which would enable them on their own initiative to carry out construction of installations even if they are small-volume projects which are nevertheless quite important. The existing system for the compilation and amending of plans, formalizing financing and obtaining construction credits and loans, including those for housing, is extremely complicated and excessively centralized.

The implementation of measures for improvement of the operational mechanism in transport will undoubtedly promote further improvement of the work of this mechanism and successful accomplishment of the tasks of the country's social and economic development in the 11th Five-Year Plan.

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RAILROAD

KEMEROVSKAYA'S SNOW REMOVAL PROBLEMS

Moscow GUDOK in Russian 20 Jan 81 p 2

[Article by G. Gyabov, people's controller at station Topki, V. Vanyushkin, chairman of the people's control group at the Tayga railroad car depot, L. Tanakova, chairperson of the people's control group of the Kemerovo station sorting yard, and GUDOK correspondent V. Denisenko: "After the Snowstorms"]

> [Text] Last winter the snow removal equipment at many of the Kemerovskaya stations operated poorly. Frequently there were 10-12 machines idled, although technically they were considered in operating condition. Often the snow drifts had to be cleared by hand, which of course hindered the operational work of the coal-loading road.
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> Not long ago some people's controllers and a GUDOK correspondent visited the main Kuzbas railroad terminals to find out how the machine operators had prepared for the snowfalls and snowstorms.

December and January have already had abundant snowfalls and snowstorm accumulations. To the credit of the machine specialists, it can be said that they successfully repelled the attack of the elements. The equipment operated in dependable fashion at the Novokuznetsk, Belovo and Prokop'yevsk terminals. And then railway engineers at Mezhdurechensk did not fall down on the job. This indicates that the collectives of many of the railway divisions have now done a far better job of preparing for snow removal. In operation are nearly all the snow-removal machines, the track-clearing equipment, the Balashenko machines and the snowplows.

All this is quite good, especially if we bear in mind that before this the equipment often required major repair because of malfunctioning generators, diesels and carriers. Now there are only minor irregularities that have to be eliminated: welding on a fender, replacing an instrument, etc. For these purposes they recently set up road shops but there have been difficulties in supplying them with spare parts: bearings, sprocket wheels, transmission gear.

The railroad received a great deal of help from the ministry. Some of the machines were repaired at the plants and three new snow-removal machines, two snowplows and one track-clearing machine were allotted. The road was also helped with diesels, generators and other equipment.

Last year the equipment was not once idled by a shortage of specialists. They have now trained 34 mechanics, enabling them to improve the use of the snow-removal machines and to organize round-the-clock duty watches.

The major problems have been resolved but there are still some "minor" ones which often in any weather conditions impair and hinder the provision of dependable, rhythmic work of the stations. These annoying "details" come to light at the most inopportune time, often at a difficult moment. For example, in the midst of a snowstorm experienced Tayga mechanics could not start SM-2 No 408. And it also gave trouble in Anzherka. And although at the time these crews were working well, the time slipped by precisely when every minute was costly. In the early part of January, because of the lack of a crew, a track-clearing machine at a Tayga section stood idle and so the coal-loading stations of Zaboyshchik and Latyshi were not cleared until 9 January.

The mobility of the railroad machine specialists is still inadequate: they hesitate a long time before leaving and they often delay for many hours. And thus a quite absurd incident transpired on a bad weather day at the Kemerovo terminal. The snow-removal machine was still inoperative; it had gone out of order as a result of the operator's carelessness. He failed to warm up the diesel in starting as he should have done and instead ran it at full speed. The diesel had to be replaced.

There are terminals on the road which are poorly provided with equipment. Thus on 10 December there were only two snowplows and snow-removal machines in working condition. Snowplow No 409 was in repair. It was not adequately prepared for winter and consequently breaks down frequently. Another one, the SM-2 No 248, was dismantled and is in the railroad workshop. As a result, on this day the tracks of the receiving and dispatching yards of the station and transport locomotive depot were cleared but the tracks of the marshalling yard were not. This gave rise to serious difficulties in the work of the railway engineers and car mechanics.

Battling the snow is also considerably complicated by the track crews' inadequate preparation for the winter. On the track spacings at Tayga the road crew saw piles of spikes, old rails, and rubbish. In places on the tracks there are unusable brake shoes which were discarded by the car mechanics. They get into the conveyer belt of the snowplows and damage the machines.

It is high time that the car mechanics and the traffic controllers and the locomotive engineers understood that there are no trivial factors in railroad transport. It is important to give careful thought to everything--the organization of repair, the organization of labor, and matters involving the observance of discipline. And these "trivial factors" arise because of a lessening of the feeling of responsibility for the task at hand.

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RAILROAD

ECONOMIST SCORES POOR SCHEDULING OF TRANS-SIBERIAN TRAFFIC

Moscow GUDOK in Russian 20 Jan 81 p 3

[Article by Candidate of Technical Sciences V. Buyanov, Moscow: "A Pressing Problem"]

[Text] Analysis of the organization of the work of the trains convinces us that the chief reason for the disruptions in the rhythm of the transport process on the principal busy double-track freight lines is the irregularity of the movement of the trains. In the same section of the tentative schedule one can often find a ratio of 3:1 and even 5:1 in the number of even and odd-numbered trains in a sector. And for some time there has been a change in the situation: the return flow dominates. In the regions with a dense network of railroads these tendencies can be operationally surmounted. Planning the transport work with a "window" in the schedule can provide for turn-around in the train traffic flow.

Where it is more complicated is on the railroads of Siberia and the Far East, on a great portion of which there are no parallel runs. In practice complications are experienced continually because of the track work on the Transsib [Trans-Siberian Railway]. There are situations when a sector has five even-numbered trains and 25 odd-numbered, when there are no locomotives at one turn-around point and 20 at another, when there are no crews at one point and at another mechanics are waiting and a place will be available for time off. In the winter similar situations are caused by snow drifts, frequent malfunctioning of the rolling stock in the low temperatures, and the stopping of trains on their runs.

The conclusion that suggests itself: on the lines of great length with particularly large loads, where there is no parallel transport, primarily on the Transsib Main Line, there is need for a third main track. It is necessary as a means of providing for stable and regular traffic and furnishing "windows" for repair and technical maintenance of the permanent installations (track, contact net) and also as a means of localizing the losses caused by breakdowns of the technical facilities. This track should have dual automatic blocking and the capability for operational switching for runs where it can be used in both the even-numbered and odd-numbered direction. The third main track will make it possible to organize fast passenger traffic on the Transsib and to provide for nonstop routing of freight trains as expresses. To compensate for the irregularity of the traffic it is necessary at the same time to develop the dispatch rolling stock of the marshalling stations in the centers which originate the movement of the trains, to build special reserve buffer tracks, and to have by-passes at the large centers.

The matter of a third main track on the Transsib Main Line is not new and everyone is aware of the global significance of the task involved and the sizable amount of material resources required for its accomplishment. However, the time has come, in our opinion, when the country must begin this work. It is essential because there is in prospect an accelerated growth of the economic potential of the eastern regions, exploitation of the natural resources, and development of the fuel and energy and raw material bases. This means increased work for the Transsib. And as the work on the BAM [Baykal-Amur Main Line] is completed, it is essential to switch over to station-by-station remodeling of the Transsib Main Line and to convert it to a three-track line.

I suggest that in the "Basic Directions" directive the words "To open train traffic for the entire extent of the Baykal-Amur Railroad Main Line" be followed by the notation "To begin the construction of a continuous third main track on the Transsib Main Line."

7962
CSO: 1829

RAILROAD

BRIEFS

POLAR TRAIN TRANSPORT--The Komsomol Youth colony headed by instructor-mechanic Communist N. Ryabinin was organized in the Kandalaksha Locomotive Depot two years ago. It operates freight trains in the sectors from Kandalaksha to Alakurti and Kovdor. Working under the difficult polar conditions, this youth collective was one of the first to support the initiative of the Moscow railroad workers, to transport in trains of increased weight more than 200,000 tons of freight over and above the norm, and also to effect a saving of fuel sufficient for 120 trips. The stepped-up socialist obligations state that in honor of the party congress every crew is to accomplish one trip on economized fuel. The locomotive crews of V. Tikhonov, M. Lugovtsev, A. Tsvetkov and several others have already fulfilled this clause of the commitments.--A. Brysov, GUDOK staff correspondent. Kandalaksha. [Text] [Moscow GUDOK in Russian 1 Feb 81 p 1]

HEAVYWEIGHT TRAINS IN OPERATION--Since the beginning of the current year the average weight of a freight train on the Transbaykal Main Line has increased by 92 tons. This is the highest indicator in the country's network of roads. Especially successful has been the operation of heavyweight trains by the workers of the Svobodnyy section of the Transbaykal Railroad, where the trains were 109 tons heavier than last year. The technical speed of the trains is also considerably greater than last year. Just from the operation of heavyweight trains the Svobodnyy section in one year obtained a saving of more than 231,000 rubles.--M. Timchenko, Amurskaya Oblast. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 24 Sep 80 p 1]

RAILROAD CAPACITY IMPROVED--They have completed the laying of the second track of the railroad from Mointy to Chu. The main line, extending for nearly 400 kilometers through steppes, sand and mountain passes, was turned over for operation a year ahead of schedule by the construction workers of the Kazakhtransstroy [Kazakh Transport Construction Trust]. The right to drive in the traditional spike was obtained by the leaders of the best crews of construction and installation trains 628 and 285 B. Filatov and Yu. Minayev and track division foreman, K. Mambekov. The entire main line connecting Tashkent and Magnitogorsk is now two-track. This more than doubles the carrying capacity of the road and speeds up by nearly four hours the movement of trains [illegible] from Kazakhstan and Central Asia to Siberia, the Urals and the country's Center.--E. Matskevich, IZVESTIYA staff correspondent, Kazakh SSR. [Text] [Moscow IZVESTIYA in Russian 31 Dec 80 p 3]

CSO: 1829

MARITIME TRANSPORT DEVELOPMENT EXAMINED

Moscow VODNYY TRANSPORT in Russian 7 Mar 81 p 2

[Article by S. Arsen'yev, Department Director, USSR Gosplan IKTP, Doctor of Technical Sciences; and Ye. Makhlin, Sector Director, USSR Gosplan IKTP, Candidate, Technical Sciences: "Under The Flag of The Motherland"]

[Excerpts] The 10th Five-Year Plan also saw a consolidation of maritime transport shore-based support facilities. The chief characteristic of maritime port development was the primary construction of high-capacity specialized trans-shipping complexes on the routes with concentrated cargo flow. The proportion of such complexes to the total volume of capacities introduced during the 10th Five-Year Plan was approximately 80 percent. Berthing structure was considerably improved with respect to depth.

Construction was concluded on the first phase of the new deepwater port Vostochnyy, composed of specialized complexes for transshipment of coal, timber, containers, and industrial chips and shavings. To support the developing advanced technology transshipment systems, container terminals and cargo transshipment complexes to handle cargoes from "Ro-Ro" [roll-on, roll-off] type vessels were built in the cities of Leningrad, Riga, Il'ichevsk, Murmansk, Arkhangel'sk, Magadan, and Petropavlovsk-Kamchatka. The first Soviet maritime transport barge system was introduced, that system being the "Danube to the Sea", with base at the mouth of the Danube, which provided non-transshipping runs to be made on the river--sea routes by employing a fundamentally new approach. In Ventspils and the new port Yuzhnyy equipment is operating for the transshipment of liquid chemical cargoes, and for the Novorossiysk port, a deepwater, high-capacity petroleum handling pier for receiving tankers with deadweights up to 200,000 tons. The ferry complex Il'ichevsk to Varna is operating successfully.

However, disproportions and shortcomings in the development of the material base have significantly retarded the efficiency of the maritime fleet operations. A particular shortage is felt in certain types of vessels, particularly low-tonnage. This suppresses the development of shipping in the maritime basins, and leads to additional expenses in the transportation of foreign tonnage.

The efficiency of fleet usage is dropping sharply due to developmental lags in port organizational facilities, primarily in capacities for receiving and processing specialized vessels. Thus, anchorages of container ships and roll-on, roll-offs exceeded, on the average, standards by a factor of two, and constitute up to 40 percent of operational time. Transshipping complexes with deepwater berths and specialized machinery are insufficient to handle highly perishable and certain other types of cargoes. Many ports are experiencing a shortage of warehouses for produce and commodities requiring special storage techniques. In a number of cases, capacities of approach spurs and port-area railroad stations are very low. Certain other ports have underdeveloped facilities designed for full fleet service.

In conjunction with the development of navigation in arctic seas and the Far East Basin, the maritime fleet will be replenished with powerful icebreakers, icebreaking transport vessels, lighter-transporters specially designed for navigation in ice conditions, including those with atomic power plants and ferries.

Developing the shipping of cargoes by sea results in increased volumes of loading-unloading operations. Significant changes are taking place in the structure of port cargo turnover, changes associated with the increased proportion of the more labor intensive general cargoes and with the improvement of technology in shipping and cargo operations. The processing of cargoes by ferry complexes has grown considerably.

To cope with the increasing volumes of loading-unloading operations, the improvement of cargo delivery technology, and elimination of developmental lags in port organization facilities, the 11th Five-Year Plan envisages the introduction of transshipping complex capacities which will exceed the growth of processing volumes. This will provide for a significant reduction in the shortage of port capacities, and to reduce unproductive idle times for the fleet. For 1981-1985 and to the year 1990, construction will be undertaken primarily of specialized transshipping complexes. The proportion of such capacities to the total capacity of maritime ports will increase relative to the current level by 5 percent, and in 1990 by 11 percent.

In the Baltic Basin ports, machinery will either be built or re-built for the processing high-tonnage containers and cargoes delivered by the "Ro-Ro" type ships, of heavy weight items, perishable and bulk cargoes, and timber. Construction is slated for the ports of Leningrad, Riga, Ventspils, Kaliningrad, and Vyborg.

New facilities for the transshipment of bulk cargoes, heavy weight cargoes, perishable, containers, general cargoes, and grain will be placed in operation in the new port of Yuzhnyy, in Il'ichevsk, Odessa, Zhdanov, and other ports.

Envisaged for the Danube ports is the creation of transshipping complexes for handling general and bulk cargoes and of a new lighter-barge base.

The growth of ports in the Northern and the Far East Basins is determined by both external economic ties of our country and coastal shipping in conjunction with the intensive economic development of the northern and eastern regions. In the Northern Basin, transshipment complexes will be constructed in Murmansk, Arkhangel'sk, a number of points on the arctic shoreline, and bases will be built to accept lighter-barge traffic. In the Far East Basin, development will continue in the ports of Vostochnyy, Magadan, and others. With the conclusion of the Baykal-Amur Mainline the development of the Far East economy will accelerate. As a result, shipping volumes will sharply increase between the island of Sakhalin and the mainland. As a result, construction has commenced on a second phase of the railroad maritime ferry Vanino-Kholmsk. Its capacity will substantially increase.

Development of the maritime fleet and replenishment with high-tonnage and specialized new type vessels, and improvement of repair technology and quality for maritime vessels require increasing the production capacities and re-equipping of ship repair enterprises. These SRZ (Ship Repair Plants) will be provided modern equipment which will insure advanced technology for repair operations, and with ship-raising facilities for the docking of high-tonnage vessels and of ice-breakers with atomic power plants. Production areas will be constructed also, and will be equipped for the repair of berths, including deepwater berths.

"Basic Directions" has precisely defined the economic and social development for our country for the upcoming decade. The realization of the tasks posed in this historical document for maritime transport will promote increased effectiveness of our country's foreign economic relations, will accelerate the economic development of the norther and eastern regions, and will raise the level and quality of our country's transportation operations.

8851
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NEW RESEARCH SHIP WITH LATEST EQUIPMENT PREPARES FOR MAIDEN VOYAGE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 27 Feb 81 p 2

[Article by R. Motskus, Kaliningrad: "Ahead — the Vast Ocean"]

[Excerpts] Just a few days ago the ship Akademik Mstislav Keldysh, built at shipyards in Finland, tied up in Kaliningrad, its port of permanent registry. Immediately intensive work began on all eight of its decks; the new research ship of the USSR Academy of Sciences is preparing for its first cruise. The scientists are especially impatient for it. After all, the unique research equipment is one of the foremost qualities of this "floating institute."

"The scientific equipment accounts for almost half of the entire cost of the ship," V. Paka, director of the Atlantic Division of the Institute of Oceanology of the USSR Academy of Sciences, said. "It permits research by the most diverse specialists — hydrologists, meteorologists, geophysicists, geologists, and biologists. The scientists will have a deep-water probe that penetrates to a depth of 6.5 kilometers. Its sensors can determine the temperature, salinity, and density of the water, the concentration of oxygen dissolved in it, and turbidity indexes. The ship also has other towed instruments. The ocean floor can be studied using so-called bottom tubes and grapple-type devices. They are lowered to the bottom, pick up samples, and raise them to the surface. The complex of powerful electrohydraulic winches makes it possible to conduct these studies at any ocean depth. Finally, the ship has a piloted underwater vehicle, called the Paysis, for self-contained investigation. It has manipulators to take samples as well as photographic and geophysical instruments."

Nonetheless, the equipment by itself is not the main thing on the new ship. The principal advantage is that it is designed as a unified system based on a powerful computer center. The large computer, linked to 7 minicomputers in labs, collects and processes information from a vast complex of automatic devices and laboratory analyzers. This system is the first on our research ships.

The specific functions of a research ship make special requirements for its seaworthiness also. Here is what V. az'min, captain of the flagship, said about this.

"The power plant of our ship has variable pitch propellers. This makes control much easier and permits us to carry out complex maneuvers. But what increases maneuverability even more is the special 'Aquamaster' device, a supplementary engine with a propeller. When cruising this device is housed in the stern shaft. But when it is needed, it is lowered into the water and can turn the ship in place, as much as a full 360 degrees. In addition, when paired with the main engines the Aquamaster can hold the ship in one place during even the strongest winds that blow on the high seas. And the automatic transverse propulsion unit helps the ship dock in any port without a tug and to perform certain oceanographic jobs.

"Needless to say, our ship has the latest navigation equipment based on a satellite system. It works alongside systems for determining the position of the ship based on shore radio beacons and a doppler device that measures displacement relative to the ocean floor. This set of navigation equipment makes it possible to determine the ship's position at sea continuously. Furthermore, it is highly precise, to a matter of a few dozen meters. And the automatic weather station also provides continuous information on meteorological conditions at the point where the ship is located.

The program of the new ship's first scientific cruise was worked out by a collective of scientists under the leadership of corresponding member of the USSR Academy of Sciences A. Monin, who is director of the Institute of Oceanology of the Academy. The leader of the expedition is candidate of geographic sciences V. Voytov.

"After testing the basic mechanisms and systems of the ship," he said, "and, of course, practicing procedures for working under ocean cruise conditions, the Akademik Mstislav Keldysh will head for the Western Atlantic, to the Caribbean Sea region and the so-called Bermuda Triangle. We are interested in the origins of the Gulfstream. We will carry out studies aimed at developing long-term weather forecasts and a theory of climate. Therefore, scientists from Cuba and Mexico will participate in the studies of the Yucatan Channel. In short, we have an important and interesting job in front of us."

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OCEAN AND RIVER

REGULAR SHIPPING SERVICE INAUGURATED BETWEEN LITHUANIA, NIGERIA

Vilnius CZERWONY SZTANDAR in Polish 6 Feb 81 p 3

[Article by W. Trawuszkin, CZERWONY SZTANDAR correspondent]

[Text] Yesterday, for the first time, a ship under the banner of the Federal Republic of Nigeria, the "River Ethiop," arrived at the Maritime Trade Port at Klaipeda. The ship has a draft of 13,000 tons and belongs to the Nigerian State Lines, a firm under whose banner 26 ships sail. The motor ship "River Ethiop," which was just built in the FRN, came to the Soviet port on its first voyage.

This voyage inaugurates the regular line Lagos-Klaipeda, along which four ships will sail.

In the next 4-5 year period, two ships will arrive at Klaipeda each month. They will transport various types of metalwork for enterprises of the Nigerian building industry.

CSO: 2600

OCEAN AND RIVER

HARNESSING POWER OF WIND STUDIED

Using Wind-Powered Transportation

Moscow VODNYY TRANSPORT in Russian 19 Feb 81 p 2

[Text] The problem of using renewable and ecologically pure natural power resources such asthe wind, the sea, solar heat, and heat from the interior of the earth is a very real one today. Let us remember that man has put wind at his service since ancient times. It is true that this power source has been used less since the development of science and technology. Meanwhile, according to the data of experts, the total amount of technically recoverable wind power in our country alone amounts to more than ten billion kilowatts. How much of this free power can be collected from the immense ocean and sea expanses which cover more than 70 percent of the entire planet. It is no accident that today the practically inexhaustible power of the wind is more and more attracting the attention of scientists and shipbuilders who have once again turned their eyes to the construction of modern sailing vessels.

In the Soviet Union a group of staff members at the Nikolayevskiy Shipbuilding Institute imeni S. O. Makarov has been working on this problem for several years now. During their research they obtained persuasive proof of the advisability of using the wind to move not only ships but also some types of land transportation. As a main or auxiliary engine, wind power installations, in our opinion, can be introduced into ocean transport, cruise, and pleasure ships, into the ocean and coastal fishing fleet, and in ships of the coastwise trade on the Black, Caspian, and the fareastern seas.

It is impossible not to notice that the VNII[All-Union Scientific Research Institute] of Complex Power Fuel Problems of Gosplan USSR, the Black Sea Steamship Company and the Ministry of the Maritime Fleet, the Nikolayevskiy Obkom of the Communist Party of the Ukraine, UkSSR Glavrechflot[Main River Fleet Administration], and other organizations are showing great interest in this work.

In 1980, on the initiative of the Black Sea Steamship Company and the newspaper VODNYY TRANSPORT, a creative discussion was held in Odessa during which various options for the possible construction of sailing vessels for the transport fleet were considered. The meeting was very useful for scientists, shipbuilders, seamen, and operators.

however, an underestimation of this problem in a number of instances still hinders the broad development of work in this direction and the implementation of practical steps to put the plan elaborations and design ideas into practice. The psychological barriers to an understanding of the long-range prospects for the creation of wind vessels have still not been overcome among a number of shipbuilders and by individual merchant and river fleet operators.

I consider it essential in the third section of the Basic Trends plan after the words "to increase the scope of the utilization in the national economy of renewable power sources(hydraulic, solar, wind, geothermal)" to add "in particular, to speed up the work on creating transport ships and ground transportation means with wind power installations."

Development of Transport Sailing Vessels

Moscow VODNYY TRANSPORT in Russian 19 Feb 81 p 2

/Text/ Even in the 1920's and 30's small-capacity sailing vessels--"dubki"(oaklets), were the usual method of coastal transportation on the Black and Azov Seas. They carried salt from the small docks located close to the salt industries on the Kinburnskaya Spit, Odessa, Kherson, Nikolayev, and other cities, and watermelons, tomatoes, and various fruits and vegetables. The "dubki" conveyed equipment, consumer goods, and building materials to the small ports Skadovsk and Ochakov, and to the moorings of small settlements on the shores of the Crimea and Caucasus. Small-tonnage ships for coastwise shipping are presently practically non-existent in the Azov-Black Sea basin. This significantly complicates the hauling and delivery of goods through the small ports and shipping points. This problem can be successfully solved by the construction of motor sailing vessels.

The variety of operational tasks, characteristic of coastwise transportation, is a pre-condition for the creation of such ships with broad universality both in the kind of freight transported and in the method of loading it, the manner of mooring ships, the sailing area, etc. A group of staff members from the Nikolayevskiy Shipbuilding Institute imeni S. O. Makarov is working on this problem. Presently the question of the feasibility and advisability of creating a motor sailboat with a carrying capacity of 300 tons and a draught of no more than two meters for coastwise navigation is being discussed with interested parties. It will be possible for such a ship to transport packed and loose goods, in containers or loose, building materials, wheeled equipment and industrial equipment, agricultural products, liquid cargo, in the most varied combinations. It will be possible for it to stop in equipped and ill-equipped ports with limited port loading facilities and a limited mooring line.

The fulfillment of the broad universality requirements for a limited-capacity motor sailboat determines the architectural design type of such a ship with sailing equipment--three-masted, single-screw, one-deck sheltered-deck, with the upper deck line raised a little in the stern and the shelter deck, with a stern loading ramp for packaged cargo, with double sides and a double bottom. They intend to build such a ship with a double shelter deck. It will have two islands--one for living quarters in the stern area and working areas and the other a rudder house in the bow. The machine and pump compartments will be located in the stern under the freight deck. The loading hatches will be between the masts on the upper deck and the hatch boards when lowered will join with the internal sides to form a closed space for bulk cargo. It must have proper facilities to load dry cargo vertically or horizontally or to pour liquid cargo.

Moreover, it seems advisable to us that the sail equipment for the first of these ships should be developed with several variations so that the optimum sail equipment variation can be used for future large displacement sailing ships. The ship must have the minimum amount of sail equipment mechanization. Japanese researchers are following a similar path. They have already built and are now testing a small sailing tanker.

A small motor sail coastal ship can be built at any shipbuilding or ship repair yard in the country. The use of sails as motors promises the following basic advantages: fuel savings, protection of the environment, easy sailing from sea to river and in the opposite direction, attraction of the young to a sea profession, the successful conduct of the practical training and elementary sailing for students of nautical schools, DOSAAF maritime schools, vocational and technical schools, and the training of seamen in sailing for future use on large sailing vessels.

I propose to supplement one of the paragraphs of the 6th section of the CC CPSU plan for the 26th Party Congress by writing in the following: "To supplement the fleet with specialized ships--container carriers, transport lighters, railroad ferries, ships for Arctic navigation, ice-breakers, and coastal sailing vessels."

8924
CSO: 1829

SHIP REPAIR PROBLEMS CITED

Moscow VODNYY TRANSPORT in Russian 24 Jan 81 p 2

[Article by G. Sinegariyev, scientific secretary of the NTO (scientific and technical society) of the BMP (Baltic Maritime Steamship Company) board and A. [illegible], deputy chief of the freight inspection department of the SOTF (transport fleet maintenance services) of the BMP: "Modern Forms of Ship Servicing"]

> [Text] The problem of the total shore servicing of ships and their crews during loading and unloading is becoming all the more real in recent years. Workers of the SOTF's of the steamship lines and water transport scientific research and social organizations are busy searching for efficient ways to improve the shore servicing of ships.

The Ministries of the Maritime and River Fleets, with the help of scientific research organizations, have developed and are introducing a number of documents aimed at improving this important business--organizing the over-all servicing of ships, the relationships between subunits, fleet technical servicing facilities, the substitute berthing crew, etc.

However, as experience shows, fleet shore maintenance is still a long way from perfection. The steamship companies have not resolved the problem of freeing seamen, to the maximum extent possible, from carrying out functions inappropriate for them. Technological plan-schedules for servicing ships are often disrupted. Demands are far from fully being met. Supplies are being brought to the ships late and they are loaded, as a rule, by the crew itself. Repair crews are extremely inadequate and the quality of the work which is performed is not always high. Manual labor is still being used to a considerable degree. The set-up for the over-all servicing of ship crews in the out-of-base ports of the basin is especially bad.

All of the developed innovations existing today, which were introduced into the steamship companies, have been directed at improving the shore servicing systems put together over a number of years, and they have at their disposal (and sometimes do not even have available) a weak technical and material base with obsolete, low-production technical facilities. This was caused both by the system of shore servicing which grew up, with the necessity of significant capital investments, as well as by the lack of a scientifically-based perspective for total shore servicing.

Life and continuous experience suggest to specialists the idea of creating a single consolidated cost accounting organization based on the existing institutions and organizations in the steamship companies for the shore servicing of ships.

The experience of shore servicing in the socialist commonwealth countries , whose experience we have carefully studied, is of great interest in this plan. As an example, we would like to show approximately how our friends carry out fleet shore servicing.

A number of firms participate there in servicing ships. All of them operate on cost accounting. Firms which are subordinate to the appropriate ministry or department have main offices and branches.

Each of the organizations specializes in different kinds of services. One firm supplies products; another cleans holds, tanks, containers, and removes polluted water from onboard; a third does bunkering. A sea communications service repairs and inspects radio equipment and electrical and radio-navigation devices. One of the firms inspects the quality of the cargo and has its own laboratory for this. A separate organization conducts a numerical inspection of cargo on foreign ships, supervises loading and unloading, and has a technical problem research maintenance division.

In accordance with the results of a study which was conducted, proposals were made to establish a consolidated cost accounting organization for the total shore servicing of ships in port. They were examined by the central board of the water transport NTC with the participation of representatives of the central committee of the trade union of maritime and river fleet workers. The proposals were also circulated for comment to the steamship companies. Specialists of the Northern, Sakhalin, Caspian, Black Sea, Azov, Latvian, Lithuanian, Estonian, and other steamship companies participated in the discussion.

All of the participants unconditionally recognized the need to improve over-all shore servicing but considered this question, as a rule, only as it stands today. Some saw in this creative group's proposals almost a prepared plan for the modernization of over-all shore servicing. But this is not the case.

There was a positive perception of the proposal to create a specialized enterprise for servicing ships, which must be conducted on a scientific basis. The development of such a plan must be carried out by the central NII [scientific research institute] of the maritime fleet. At the same time it is impossible to be guided by the existing forms and methods for over-all shore servicing. The new enterprise for servicing the fleet must have a strong material and technical base, highly-productive technical facilities, mechanization of work processes, and a modern computer technology. It is also necessary to legitimize the cost accounting relationships between the specific enterprise and the ships.

When developing a plan for such an enterprise, it is necessary to also take into account the positive aspects of shore servicing which are already in existence today.

One should probably also think about delimiting shore servicing and freight calculation problems. Perhaps it is advisable to create an institute of state intersectorial acceptance and transfer officers subordinate to the chief customs directorate of the USSR.

Thus, one thing is clear--the research work of the Central Scientific Research Institute of the Maritime Fleet is the first thing necessary. Only after a scientific study, an economic analysis, and a determination of the amount of required reorganization, will one be able to speak about developing a plan for an enterprise.

Specialists of the SCTF's of the steamship companies and the water transport scientific and technical staff must give substantial help to this great and important work.

The CC CPSU plan for the 26th Party Congress says a great deal about increasing the volume and kinds of various services, including those connected with transport maintenance. However, there is not even a line about service for the transportation workers themselves. In this connection we propose a slight change to one of the points in the sixth section of the Basic Trends Plan. The new edition should read: "to improve the structure of the rolling stock and the fleet by ensuring their broader specialization and increasing the level of fleet servicing in ports."

8524
CSO: 1829

NOVOROSSIYSK: DOCK-RAILROAD WORKER COORDINATION LACKING

Moscow GUDOK in Russian 10 Mar 81 p 2

[Article by L. Makhno , clerk and secretary of the Komsomol committee of Novorossiysk station, A. Stepanets, secretary of the Komsomol committee of Novorossiysk port, and S. Makarov, GUDOK correspondent, members of the inspection brigade: "Use All Reserves"]

> [Excerpts] The "Komsomol Searchlight" group and the newspapers KOMSOMOL'SKAYA PRAVDA and GUDOK are conducting an all-Union inspection of the use of railroad cars.
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> The working pulse of the Novorossiysk transportation center is clear and strong. The center is based on the railroad station and one of the country's largest commercial ports. Nearly 100 kilometers of railroad track have been laid in the port area. Each day some 1,000 railroad cars are at work there.
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> A brigade from the city headquarters of "Komsomol Searchlight" and the newspaper GUDOK have made a surprise inspection to see how these cars are being used. We publish its report below.

Car downtime in the port is steadily decreasing. In 1980 it was lowered by an average of 30 minutes. This freed 2,160 cars for additional loading. Downtime has been reduced another 1.1 hours since the start of the current year, when competition to celebrate the 26th party congress in a worthy fashion picked up strongly. This made it possible in January alone to "save" 533 railroad cars.

All this is certainly good. But we recently toured the port areas and saw for ourselves that the work could be much better.

Let us listen to some of the people who were working in the port and at the railroad station at that time.

"During the night, at 0230," said V. Nepomnyashchaya, a scale operator, "boxcar No 2518149 was delivered to the western area of the port. It had no doors and had to be returned to the station. But this was not done until 1130. We lost nine hours."

We immediately tried to find the person responsible for this. But all we could learn was that car foreman A. Kovalev's shift was working that night.

In the central port area we saw flatcar No 4758235. While we were there a powerful floating crane removed a heavy metal piece from it. Underneath the piece we found at least a ton of grod crushed rock. The shipping station was Trofimovskiy No 1 of the Volga Railroad.

In gondola car No 6628178, which was loaded with scrap metal at Shakhtnaya Station of the North Caucasian line, we found a record amount of residue, up to 10 tons of compacted cement and sand, after the metal was unloaded.

These are not isolated examples. We saw many "empty" cars on the tracks at the port with significant amounts of various chemicals, inert cargo, and the like left in them. The Novorossiysk port workers were forced to clean out these cars as required by instructions, although the problem was caused by freight shippers somewhere in the Volga region and the North Caucasus. It is the dock workers who must do this labor-intensive work. The staffing schedules do not provide any other people to do it. But there are already too few dock workers.

Yu. Popov, deputy chief of the port in charge of railroad shipping, comments: "Indeed, we now have a shortage of dock machine operators in the port. Nonetheless we have to send them to clean out railroad cars. One thing surprises me. Why do the managers of the station stubbornly refuse to sign the documents to hold those careless freight shippers who did not clean out the cars after unloading responsible?"

To be frank, we also would like to know this.

On the day of the inspection we found gondola car No 6769818 carrying pipe and boxcar No 9292264 with bitumen in barrels and several refrigerator sections standing in the port for the second day, still not unloaded.

Acting station chief A. Merkulov comments: "Car downtime in port could be reduced if unloading at night went on continuously. As a rule, we do not have enough dock worker brigades between midnight and 0700. The other day, for example, 40 cars were delivered to the port in the evening and nighttime, and by morning only three had been unloaded. The loading of refrigerator cars is going slowly too. But in 1980 the Krasnodar section of the road fined the station 60,000 rubles for allowing these scarce cars to be down too long."

In the eastern sector of the port we found cars Nos 2274319, 2664762, and 2305248 with grain panels which came in from the Chekhov, Smolensk, and Kozlovka stations of the Moscow line. The port had unloaded some of them, but the others, which were broken, were still there on the day of the inspection. Only when they saw the inspection brigade did the managers of the Novorossiysk station send the damaged panels in for repair.

Merkulov said, "At the request of our fellow workers, the station has set up a constant stock of grain panels, but the port workers do a poor job of loading the cars with panels."

Popov says, "From 40 to 60 percent of the grain panels coming in need major repair, and some of them should be written off as beyond repair. We try to repair them, but this work is going slowly. Incidentally, new closed cars with 120 cubic meter capacity have appeared, but the grain panels are still of the former size. As a result, we cannot load cars to full capacity with light grain such as soybeans, sorghum, and corn out of fear that it will spill over the edge of the panels during the trip."

We also found the following disturbing case. Car No 2348282 had been standing for several days with 25 tons of grain whereas its normative capacity is 62 tons. M. Muradayn, port dispatcher, says "We have nothing to fill it up with. There is no wheat of that variety available in port, and the grain inspectors absolutely forbid mixing it with other type of wheat."

We cannot argue that it should be mixed, but it is equally intolerable to turn this car into a storehouse on wheels. Yet such illegal "storehouses" do exist. The port and railroad workers must find an answer to the problem together, and the faster they do the better it will be for the national economy.

Merkulov says, "The port workers are not always to blame either. Here is a vivid example. The Astrakhan' Pulp and Cardboard Combine shipped 27 boxcars of rolled paper to the port. It was loaded in such a way that there was no possibility of mechanized unloading in Novorossiysk. It was even somewhat dangerous to unload it manually. We had to call in a brigade of loading workers from the combine itself. As a result some of the cars were parked here for as much as two weeks. I am sure that if these problems could be overcome, the average downtime in port could be reduced by at least another hour."

Comments by Yuriy Zinov'yev, Secretary of the Novorossiysk City Komsomol Committee and Chief of the "Komsomol Searchlight" Headquarters, on the findings of the inspection:

"I also took part in the inspection," he said. "I saw the situation myself, and I consider it essential to take the following steps. "Searchlight" activists at the station and the port must keep a strict and constant watch on so-called 'empty' cars which have large amounts of residue in them. The city Komsomol committee is organizing several youth brigades, some composed of students from the higher grades, who will clear residue from the cars, in their free time and in safe places, and prepare them for loading packaged freight. Other brigades will sort and repair the panels."

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MISCELLANEOUS

MEASURES TO IMPROVE COORDINATION AT TRANSPORT CENTERS

Moscow GUDOK in Russian 21 Feb 81 p 3

/Article by S. Rezer, sector chief of the VINITI(All-Union Institute of Scientific and Technical Information): "How to Solve the Problems of Centers"/

/Text/ The total planning and organization of the operational control of transportation is a major problem on which the improvement of the work of the country's transportation system depends. Today work is planned separately for each type of transportation. Problems of the operational coordination of plans and the redistribution of work among transportation sectors are resolved in arguments with local organs and in the State Arbitration Commission.

For example, in Sverdlovsk and Rostov-on-the-Don the railroad workers in their transportation plans claim that a specific amount of cargo will be hauled from the stations by motor vehicles while the vehicle drivers, in their own drafts, plan only a portion of this work for themselves. Hence there is an overstocking of stations. Valuable unhauled cargo lies for months. Equipment and rolling stock downtime grows. It is as if this has been planned beforehand. Perhaps one can put up with such a situation.

It is a different story when the total transportation plans have been centrally established for railroad workers(on mainlines) and motor vehicle drivers(in republics and oblasts). Rolling stock downtime and losses in fulfilling such transportation plans will be sharply reduced.

The system of accounting for railroad car downtimes on enterprise industrial sidings also needs improvement. Now a listing of idle railroad cars is made manually by the workers at stations and enterprise industrial sidings. This creates possibilities for numerous inaccuracies and direct padding. Such accounting becomes an entirely different matter when automatic, non-contact counters of railroad car downtimes are installed. They have already been created and a certificate of invention for their creation has been issued. However, they have not been introduced anywhere up till now.

An accurate accounting of railroad car delays will help the switch from a system of fines to the payment of a fee for railroad car downtime. As has already been said and written many times, the system of fines is ineffective; expenditures for fines are planned by the enterprise and that is why they do not affect any personal interests. It is another matter to pay a fee for downtime according to a counter. Fewer railroad car downtimes mean smaller fees, and a larger bonus fund for the enterprise.

The MPS/Ministry of Railways/ jointly with interested ministries and departments must introduce on an experimental basis an automatic computer-based railroad car downtime counter at several large industrial sidings and make its recommendations.

Transportation also needs other kinds of computerized equipment. Today boxes and packages of freight are still marked manually at a majority of stations by a brush with a solution of soot in kerosene. Invoices, railroad car and route journals, and other transportation documents are also being drawn up manually. With the size of our total transportation system, these are huge losses of labor, delays of freight and rolling stock: railroad cars, motor vehicles, ships.

The manual methods for drawing up documents and marking freight which exist today in transportation are anachronisms in the computer age. It is known that many of the leading enterprises have modern, inexpensive devices for the automatic marking of freight, copying and duplicating machines, and other modern facilities for rapidly drawing up documents. The use of computerized equipment does not require large expenditures yet the gain will be enormous. It will improve the conditions for carrying out ASU/automated control systems/ and will sharply increase labor productivity.

Automatic counters, displays, and other modern technical equipment will also be of basic help in improving the informational service to transportation. This is a decisive moment in the improvement of the transportation operational control system. Each station, port, and motor vehicle enterprise with the assistance of reciprocal ASU-based data must know in advance when and from where freight has been sent to it, and the approximate time periods for its receipt in accordance with established train schedules. Now, for example, we frequently pay with currency for the downtime of foreign ships waiting to carry oil. The pre-port stations do not know when the liquid-carrying trains have been loaded and when they will actually arrive at the port for discharging. This lack of knowledge costs the state dearly.

Today in many countries--the CEMA nations and in developed capitalist countries--unified authorities have been created to direct the transportation system of the country. Such centralization has great potential. Studies have shown that a single transportation ministry should not be created in our country because of its size. However, the lack of an authority to operationally solve the major coordination problems(legal positions, transport rules, tariffs, transport and dispatching work, ASU development, and other questions) leads to large transportation losses. According to rough calculations, with a total national economic transportation cost of about 100 billion rubles a year, losses due to a lack of coordination of activities of the types of transportation come to more than 10 billion. This is a huge reserve which can be used for improving the structure and methods of controlling the transportation of the country.

It has become urgently necessary to create a state general transportation coordinating authority--the Committee of Transportation of the USSR Council of Ministers. This authority, having control over all transport ministries, could carry out through them the functions of directing transport in order to more fully satisfy the transportation needs of the country with optimum capital investments in the development of transport and minimum operational expenditures.

Our scientists have much to do to solve the complex transportation problems. A number of studies have been carried out in MIIT/Moscow Institute of Railroad Transportation Engineers/ on the protracted problems of the total control of transportation. Research is being conducted in a number of different institutes. However, these efforts have been separate at present. Recently a general meeting of the USSR Academy of Sciences decided on the necessity to create within the system an academy of a transportation-type scientific institution. This is a decision of great state importance. It must be put into practice very quickly.

I propose to add the following to the CC CPSU plan after the words "to improve the coordination of the work of all types of transportation and their interaction with other sectors of the national economy": "to revise the rules for all types of transportation. To determine comparable work indicators for the various kinds of transportation in the transport system of the country, to introduce total shipping planning methods, including at the general transport centers. To examine the question of creating a central authority for transportation coordination." The realization of this addition will allow us to introduce new production resources and to successfully carry out the tasks set in the CC CPSU plan for the 26th Party Congress for the 11th five-year plan and up to the year 1990.

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